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IN THE
United States
Circuit Court of Appeals
For the Ninth Circuit

MOULTON MINING COMPANY (a corporation),
CLARK-MONTANA REALTY COMPANY (a corporation),
ELM ORLU MINING COMPANY (a corporation), and J. ROSS CLARK,

Appellants,

vs.

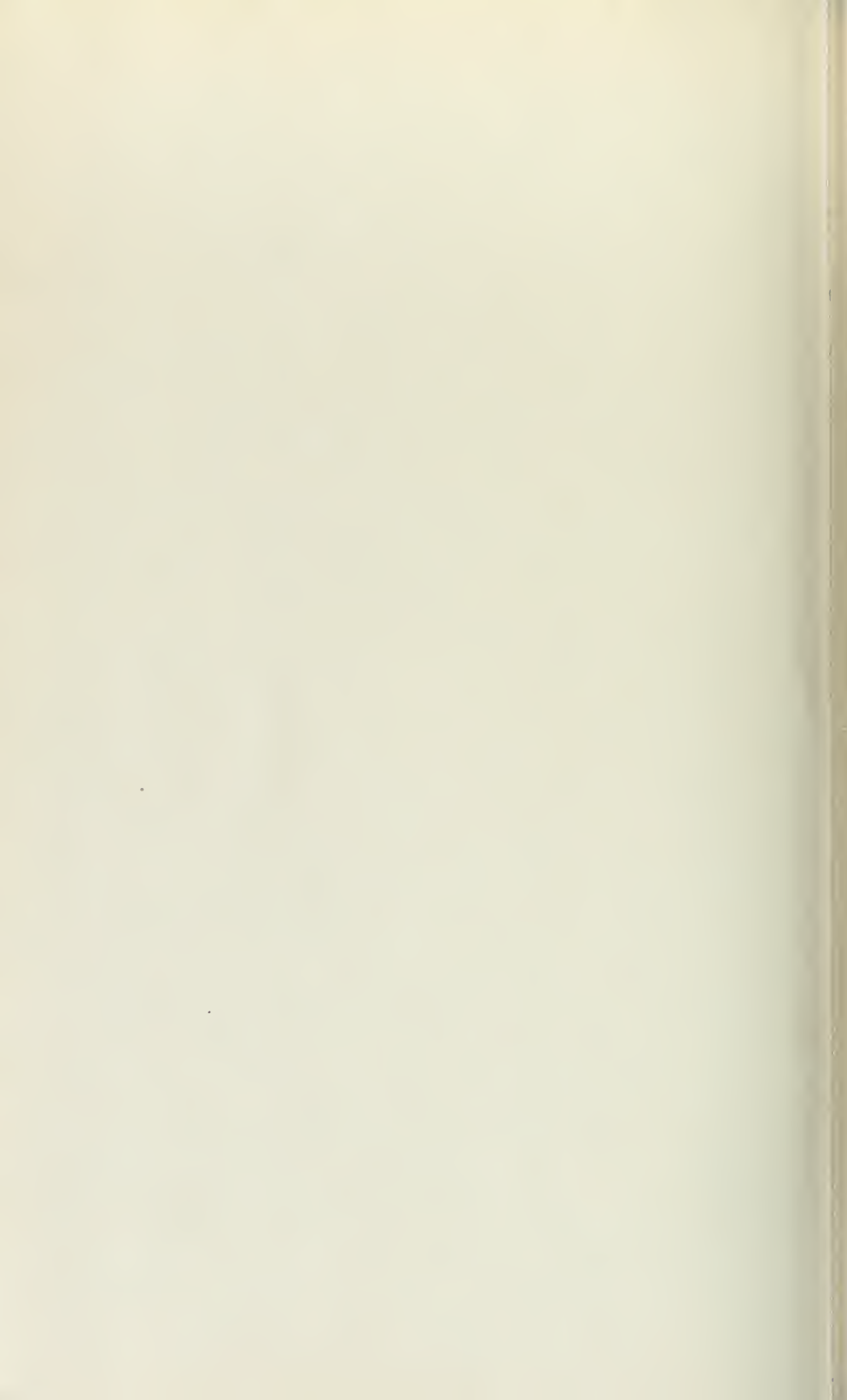
ANACONDA COPPER MINING COMPANY (a corporation),

Appellee.

APPEAL FROM UNITED STATES DISTRICT
COURT FOR DISTRICT OF MONTANA.

BRIEF FOR APPELLEE.

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Appellee.

APPEAL FROM UNITED STATES DISTRICT
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BRIEF FOR APPELLEE.

I.

PRELIMINARY STATEMENT

1. General.

In this brief we shall denominate the parties as they are aligned here, plaintiffs below as appellants, defendant as appellee. Unless otherwise indicated, references are to the five volumes of printed record, the

volume by Roman figures, the pages by arabic. Italics are ours.

In order to follow the detailed discussions of various workings in the mine hereinafter presented, it will be essential for the Court to have before it in convenient form the maps or sketches under review. We have therefore reproduced on a small scale certain original maps, referred to as "diagrams" in this brief, and have bound them in a separate volume as an appendix hereto.

Presentation of evidence consumed eleven days in the District Court, from October 15th to 27th, 1926, all testimony being given in open court. It was thereafter argued for two days, in January, 1927, submitted on voluminous printed briefs, and was decided upon the written opinion of the District Judge on February 18th, 1927 (V, 2232). The testimony, covering about 2,100 pages of the printed record, consisted largely of that of expert geologists or engineers of the respective parties, five on each side, who testified minutely upon mine workings more extensive in dimensions and probably more complicated in character, than in any other similar suit in the annals of mining litigation. There were in the area under review over 3,000 numbered workings, some very extensive. Models, maps and other exhibits were introduced in great number, about *III* by appellants and 65 by appellee.

At the conclusion of the testimony the trial judge spent two days on a view of the premises (V. 2228-30, 2244-5, 2251).

If we were disposed and under necessity to disregard the extended testimony and to present theories

never suggested in the trial court, it might be possible by pursuing the course adopted by appellants, to compress this brief into the space to which theirs is limited. We cannot do so, as we are required to perform a duty which the rules impose on an appellant but which have not been observed by it here, to state with some detail and accuracy the facts presented by this record. Take, for instance, the alleged Poser vein. Pages of appellants' brief are devoted to a construction of this vein by assays. Substantially nothing is said of the geological conditions in the ground, the existence of other vein structures, and the many physical facts developed in evidence, some of which were doubtless observed by the trial judge in his view of the premises, and all of which render the vein constructed solely by aid of assays, never discovered by appellee in years of practical mining work and not discernible in the ground, a complete myth. The same comment is applicable as to appellants' treatment of the "Intermediate" vein. While this phase of the controversy involves one comparatively inconsequential stope 2800 feet underground and near the Poser east end line plane, it has been given place of honor for appellants' discussion here, as it was below, as against the "Poser" vein by virtue of whose alleged existence appellants seek to appropriate veins and ore bodies of great dimensions, discovered by appellee and mined by it without question, some fifteen years. On this Intermediate, as on the Poser, the trial depended on facts, finally hinging on whether a raise known as 1736-A was driven on the Intermediate vein, a branch of the Rainbow, as claimed by appellants, or on the View vein, of northwest age

and which united with the Emily as claimed by appellee. The court found this issue for appellee (V, 2246-2251). The development of so-called questions of law has remained for this review on appeal.

Effort to follow the discursive argument for appellants would involve either a departure from an orderly presentation of the facts or a repetition of such facts. We have concluded, therefore, to proceed in orderly form to develop the case as it appears from the evidence, and in doing so, every matter relied upon by appellants will be answered, though perhaps not in the order stated in their brief. We fear the court may consider at the outset that we present the geological facts at too great length. We believe, however, that when the case is understood it will be found that in no other way can this unjustified effort to mulct appellee be met. The almost complete absence of detailed discussion of the workings from appellants' brief, an absence which can only be explained by their aversion to them, has thrown this burden on appellee.

2. **Decision of the Case Depended Solely Upon Disputed Questions of Fact, There Being No Controverted Principles of Mining Law Involved. The Findings of the Trial Court Thereon Are Conclusive.**

In the trial court both parties and the court treated the case as depending entirely upon questions of fact. Fully confident of the non-existence of facts to support appellants' contention as to their Poser and Intermediate veins, and in order to dispose of the controversy beyond question, appellee, by stipulation, waived any question which might have been raised as to appellants'

title to the Poser claim, or as to its prior location, and, basing its position solely upon ownership of the ore bodies in controversy by reason of its patent title, and also that the veins or ore bodies in controversy lay in veins apexing in appellee's ground, it submitted the issues upon the facts alone. The voluminous testimony of the witnesses, and the exhibits, whether geological or assay, were directed to the issues of fact.

Respecting the Poser vein the testimony was devoted to its existence west of the Emily vein, appellee asserting that in this region there was no such vein, and that the Pilot vein east of the Emily and down to the 1000 foot level form no part of any Poser vein as described, and had no connection with any of the ore bodies in controversy. The court so found.

As to the Intermediate vein, the issue was purely of fact as to whether the ore bodies on the 2800 foot level, beneath appellee's surface, apexed in appellants' ground in the vein called the Intermediate vein, which they first stated extended as an independent entity from end line to end line of the Poser claim, and afterwards asserted was a branch of the Rainbow lode. The issue of fact as to the Intermediate vein and the ore bodies in controversy finally was narrowed to whether that vein, as found on appellants' 1500 level, was the one extending up from the small stope involved through 1736-A raise. Appellee's evidence was to the effect that it was not the same vein and that the stopes and raises to the 1500 foot level were on the View vein, a branch of the Emily, and the court so found.

The geological theories upon which appellants relied and in support of which their witnesses testified were

flatly and clearly refuted by those of appellee, not merely by contradiction of the theories but of the alleged facts upon which they were founded. The Poser lode claim of appellants, upon which they predicated their rights, immediately adjoined on the west the Elm Orlu lode claim belonging to certain of the present appellants (Clark-Montana Realty Company and Elm Orlu Mining Company), and in whose right they brought the suit of *Clark-Montana Realty Co. et al. v. Butte & Superior Copper Co.* (hereinafter called the Elm Orlu case), decided by the District Court for Montana in 1916 (233 Fed. 547). That case involved conflicting rights between the Elm Orlu and Black Rock lode claims. Both cases involved the same general geological formations, peculiar to Butte. In the *Elm Orlu* case, the same District Judge viewed the premises and in his opinion analyzed the geological features and theories involved, in the same painstaking manner that he exhibited in the case at bar, and found for the plaintiffs therein. The *Elm Orlu* case came to this Court on appeal, it being contended by the appellant therein, among other things, that the District Court had erred in several findings of fact respecting veins there in controversy. But this Court said:

"The appellant does not assert that the findings of fact are unsupported by competent evidence, but contends that they are contrary to the weight of the evidence. The trial court made its findings *after an evidently careful and painstaking investigation of the testimony and the exhibits, and after a personal inspection of the mining properties.* We have examined the record sufficiently to see that the findings are all supported by the credible testimony of reputable witnesses. *Upon settled princi-*

ples, which this court has always recognized, findings so made upon conflicting testimony are conclusive upon this appeal."

Butte & S. Copper Co. v. Clark-Montana R. Co.,
et al. (1918) 248 Fed. 609.

Upon appeal from this Court's opinion, the above language was approvingly quoted by the Supreme Court, which applied it to its own situation, saying:

"And we said in *Lawson v. United States Mining Co.*, *supra*, of the conclusion of the Circuit Court of Appeals in such case—and the concession is as great as appellant is entitled to—'That if the testimony does not show that it (the conclusion of the court) is correct, it fails to show that it is wrong, and under those circumstances we are not justified in disturbing that conclusion. It is our duty to accept a finding of fact, unless clearly and manifestly wrong.' The findings accepted, the conclusions of law must be pronounced to be of necessary sequence."

Butte & S. C. Co. v. Clark-Montana R. Co., 249
U. S. 12, 30.

Other cases in which this Court has applied the rule are:

Thorndyke v. Alaska, etc. Co., 164 Fed. 657, 665.
McCarthy v. Bunker Hill, etc. Co., 164 Fed. 927,
940.

Bliss v. Washoe Copper Co., 186 Fed. 789, 824-5.
Vanderbilt v. Bishop, 199 Fed. 420, 422.

Boss v. U. S., 290 Fed. 167.

Taylor v. Humboldt Co., 295 Fed. 112, 114.

John T. Porter Co. v. Java Co., 4 Fed. (2) 476,
478.

Standard Oil Co. v. Merchants Co., 17 Fed.
(2) 366, 367-8.

And in certain of them, personal inspection of the prem-

ises by the trial judge has added greatly to the force of his determination on conflicting facts.

McCarthy v. Bunker Hill, etc. Co., 164 Fed. 927, 940.

Bliss v. Washoe Copper Co., 186 Fed. 789, 824-5.

The rule is followed by the Supreme Court:

McKinley M. Co. v. Alaska M. Co., 183 U. S. 563, 569.

Lawson v. U. S. Mining Co., 207 U. S. 1, 14.

United etc. Co. v. U. S., 258 U. S. 451, 455.

Indeed, in *Adamson v. Gilliland*, 242 U. S. 350, the court reversed a court of appeals which had disagreed with the trial court upon the "evidence as it stood in print," saying that (353):

"The case is preeminently one for the application of the practical rule that so far as the finding of the master or judge who saw the witnesses 'depends upon conflicting testimony, or upon the credibility of witnesses, or so far as there is any testimony consistent with the finding it must be treated as unassailable.'"

We state and rely upon this point *in limine* because there never was a case where observation of witnesses, testifying by constant reference to almost innumerable maps and models, and inspection of the premises as an aid to appreciation, confirmation or rejection of their testimony, were more essential to a correct judicial conclusion, than this record exhibits, or where the attitude of appellate courts, as expressed in the above quotation, is more fitting and harmonious with a just decision. The remarkable and accurate comprehension of the record displayed in the district judge's opinion herein (V,

2232, *et seq.*) could never have been attained solely by an attempted study and analysis of 2100 pages of printed testimony with countless references to maps or models and working numbers therein, practically incomprehensible in cold type.

While we shall in this brief discuss the salient points of the case—and nothing more is possible within reasonable or permissible limits—we respectfully submit that as the decree is based on findings on conflicting evidence, by a judge experienced in mining litigation, who saw, heard and followed the witnesses in their descriptions, and viewed the premises, the decree should be affirmed without further investigation. But if the Court should undertake the task of reviewing that testimony, then we commend to it those comments of the trial court with respect to the credibility of the conflicting testimony, based on advantages of observation which no reviewing court can possess (V, 2244-5):

“Long absorbed in the problems of this controversy, all (witnesses) see, believe, adjudge as do their employers, all are committed to the latter’s causes and are zealous to further them, all are more or less partisan. Otherwise they would not be presented as witnesses. None the less, all are of learning and experience, and doubtless all believe that in the main their representations of fact and opinion conform to the truth—or hope the Court will believe they do. *As a whole, their testimony merits and receives careful consideration.*

“It is noted, however, that in acquaintance with, experience in, and knowledge of the District, defendant’s experts are greatly superior; and it must be said that in disposition and skill to fence and evade, they are inferior. In respect to the last virtue, Burch and Simkins may take place with defendant’s experts. Moreover, view of the prem-

ises tends to sustain defendant's experts in conflicts between them and the experts of plaintiffs, save in some comparatively unimportant instances. So it is, that the evidence fails to prove that the 400 to 600 feet aforesaid constitute the Poser vein."

The brief of appellants shows that counsel are evidently mindful of the rule as to presumption of correctness of findings of fact by the trial court, as laid down by this Court and the Supreme Court in the case of *Butte & Superior Co. v. Clark-Montana Realty Co.*, 249 U. S., 12, 30.

In this connection, however, we find in appellants' brief an inaccurate reference to the opinion of the Supreme Court in the case of *Carlson v. Curtiss*, 234 U. S. 103. The brief (p. 21) states that one of the exceptions to the rule of presumption of correctness of findings is where the evidence would sustain other findings overcoming the finding made. Such statement is not found in this Supreme Court decision. What the Court did say upon this point (234 U. S. p. 106) is as follows:

"Among the assignments of error is one based upon the refusal of the Supreme Court to find as a fact that the acts for the performance of which plaintiff in error was held guilty of contempt were done under the direction and authorization of officials of the War Department of the United States, acting in pursuance of and in accordance with the acts of Congress. While, in ordinary cases, we are bound by the findings of the state court of last resort respecting matters of fact, it is hardly necessary to say that that court cannot, by omitting to pass upon the basic questions of fact, deprive a litigant of the benefit of a Federal right, any more than it could do so by making findings that were wholly without support in the evidence.

And just as this court, where its appellate jurisdiction is properly invoked and all the evidence is brought before it, will, if necessary for a decision of a Federal question, examine the entire record in order to determine whether there is evidence to support the findings of the state court, so it is our duty, in the absence of adequate findings, to examine the evidence in order to determine what facts might reasonably be found therefrom and which would furnish a basis for the asserted Federal right."

The Court then proceeded to consider the evidence, and concluded from the facts that no Federal question was presented.

Counsel then refer to the case of *Stewart Mining Co. v. Ontario Mining Co.*, 237 U. S., 350, in which case there was a plain question of law presented after the determination of the questions of fact. Taking the findings of the lower court as to the situation of the apex of the vein, a question was presented as to the right to follow extralaterally a vein with a divergence on strike of less than 45 degrees from the end line planes, an obvious question of construction of the Federal mining statute.

Following this, in appellants' brief we find this remarkable statement (p. 23):

"So also in this case, while the court below decided certain questions of fact which were basic, it also made its judgment to depend as well upon questions of law."

It is difficult to understand this statement, as nothing could be plainer, as disclosed by the quotations from the Court's opinion in appellants' brief, than that after finding upon the facts as to the Poser and Intermediate

veins, the Court found unnecessary the determination of any question of law, and so stated in the opinion. We cannot conceive how the Court could have made it plainer that, after determining the issues of fact, he considered as eliminated, and did not attempt to decide, any question of law bearing upon the same. The Court (V, 2246) says:

“In view of this conclusion in respect to the first part of the case, it is unnecessary to here consider (1) whether a vein of one age can unite or merge with a vein of another age, or only intersect, adjoin or abut it, and (2) whether in any case a fissure no better mineralized than plaintiffs’ sample assays indicate for 1300 feet, is a ‘continuous vein,’ in legal contemplation or in fact, affording an apex and extralateral rights to great ore bodies below. The last may well be doubted.”

The first of the two questions suggested by the Court, which it found unnecessary to consider, was probably the question of respective rights in cases of intersection as against union, under the Federal statute. The second question was as to whether, even in the event it was demonstrated that there was such a fissure or structure as the claimed Poser, with mineralization as insignificant on the surface, and to a depth of practically 1300 feet as appellants’ evidence demonstrated it to be, it could be held to be a vein or lode under the law, and sufficient upon which to base extralateral rights.

Since the Court found that there was no Poser vein or structure, there was plainly no possible question of law to be considered.

In regard to the Intermediate vein, in the beginning of the portion of the opinion disposing of the issue as

to this, the Court refers to a possible legal point regarding the right of appellants to follow extralaterally upon the ore bodies in the View vein, as the portion of the vein containing them was known to have a strike of less than 45 degrees from the plane of the Poser end line. The Court plainly (V, 2246) states that it pretermits the point, as have the parties, and proceeds to consider the evidence, and concludes as a matter of fact that appellants' contentions as to the ownership of the ore bodies in controversy have not been established.

In regard to their claim that there were involved in the decision of the lower Court questions of law, either as to the Poser or Intermediate vein, appellants have simply erected a man of straw and then promptly destroyed him by their own quotations from the Court's opinion.

The existence of the Poser or Intermediate or other veins in appellants' ground, which apexed and controlled the ore bodies in controversy lying beneath appellee's premises, were purely questions of fact.

In *Book v. Justice M. Co.*, 58 Fed., 106, 126, Judge Hawley said that:

"It is always, in every case, a *question of fact*, to be determined by a court or jury, *whether a vein or lode has been discovered or exists within the limits of the particular claim or location in controversy, and also a question of fact* as to the continuity of ore and mineral matter constituting the width and extent of any particular lode."

This is the universal rule.

- 1 Lindley on Mines (3rd Ed.) Sec. 294, p. 665.
- Lawson v. U. S. M. Co., 207 U. S. 1, 11-12.
- Stewart M. Co. v. Ontario M. Co., 237 U. S. 350, 360, 361.

Montana Ore Purchasing Co. v. Boston & M. C. C. & S. M. Co. (C. C. A. 9), 85 Fed. 867, 868.

Blue Bird M. Co. v. Largey (C. C. Mont.), 49 Fed. 289, 290.

3. Appellants' Contentions That Decree, in Any Event, Should Have Awarded Them Certain Rights on the Pilot and Extra-lateral Rights on the View Vein.

Appellants, in their brief, make, for the first time, the surprising criticism of the lower Court's decree in that it did not adjudge to appellants ownership of the vein called by the appellee the "Pilot," and that portion of the View vein lying westerly of the point where the Emily vein crosses the south side line of the Poser claim.

This attack on the Court's decree is clearly the result of a very recent afterthought on the part of counsel. No such suggestion was made upon this record nor upon the oral argument, nor in the brief in the Court below. There was no application in any form to the lower Court for any such decree and no hint of any such desire on the part of appellants. This matter was not alone kept from the attention of the parties and of the Court below until receipt of appellants' brief, but the same is not supported by any assignment of error and, as will be hereinafter pointed out, there is no support for such contention either upon the law or the evidence in this case.

So far as the Pilot vein is concerned, appellants do not refer to any assignment of error supporting this contention, and none can be found in the record.

As to the View vein, counsel refer to assignment XXVII. Certainly this assignment in no way sug-

gests such a point, it merely being an exception to the action of the Court in not sustaining appellants' contention as to the vein in the 1736 raise and the ore body in controversy on the 2800 level; that is, its contention as to this vein being the Intermediate, as claimed by appellants.

However, the pleadings plainly show why the Court, in view of its findings of fact, did not include, and could not properly have included, in its decree any adjudication to appellants of the Pilot vein, or any part thereof, or any part of said View vein. Under the pleadings, the only issues to be tried by the Court were the ownership of the vein segments and ore bodies claimed and mined by appellants, and all lying beneath the surface of mining claims admittedly owned by the appellee, and, having found that all of these ore bodies belonged to the appellee, the Court entered the only decree possible, one dismissing appellants' complaint.

The complaint (I, 3-16) alleges (paragraph VIII) the ownership of the Poser lode claim, and (paragraph X) that appellee is the owner of a group of mining claims adjoining said Poser lode claim; the existence in said Poser lode claim of a discovery vein known as the Rainbow lode, and (paragraph XII) the presence in

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Montana Ore Purchasing Co. v. Boston & M. C. C. & S. M. Co. (C. C. A. 9), 85 Fed. 867, 868.

Blue Bird M. Co. v. Largey (C. C. Mont.), 49 Fed. 289, 290.

3. Appellants' Contentions That Decree, in Any Event, Should Have Awarded Them Certain Rights on the Pilot and Extra-lateral Rights on the View Vein.

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In equity cases, no less than in law actions, parties will not be permitted by the appellate court to present a different issue or theory than that alleged in the complaint and to which the testimony was directed and upon which the case was tried.

U. S. vs. Kettenbach (CCA. 9), 208 Fed. 209;
 Stewart vs. Ontario M. Co., 237 U. S. 350, 361;
 Ford Motor Co. vs. Farrington (CCA. 9), 245
 Fed. 850;

Hatcher vs. N. W. Nat'l L. Ins. Co. (CCA. 8),
 184 Fed. 23, 25.

gests such a point, it merely being an exception to the action of the Court in not sustaining appellants' contention as to the vein in the 1736 raise and the ore body in controversy on the 2800 level; that is, its contention as to this vein being the Intermediate, as claimed by appellants.

However, the pleadings plainly show why the Court, in view of its findings of fact, did not include, and could not properly have included, in its decree any adjudication to appellants of the Pilot vein, or any part thereof, or any part of said View vein. Under the pleadings, the only issues to be tried by the Court were the ownership of the vein segments and ore bodies claimed and mined by appellants, and all lying beneath the surface of mining claims admittedly owned by the appellee, and, having found that all of these ore bodies belonged to the appellee, the Court entered the only decree possible, one dismissing appellants' complaint.

The complaint (I, 3-16) alleges (paragraph VIII) the ownership of the Poser lode claim, and (paragraph X) that appellee is the owner of a group of mining claims adjoining said Poser lode claim; the existence in said Poser lode claim of a discovery vein known as the Rainbow lode, and (paragraph XII) the presence in said Poser lode claim of the top or apex of a vein or lode designated the "Poser Vein," which Poser vein dips southerly and crosses and extends through the southerly side boundary line plane beneath the surface of the adjoining group of claims of appellee.

Following the allegations as to the existence of said Rainbow and Poser lodes or veins, the complaint (paragraph XIII) alleges that there is *also* within the surface

boundaries of said Poser lode claim a vein or lode designated "Intermediate Vein," the top or apex of which extends longitudinally throughout said claim from end line to end line, crossing both of the end lines; that the said Intermediate vein has a southerly dip and, on its downward course, passes through the vertical south side line plane of said Poser lode claim, and is found extending downward and beneath the surface of the adjoining group of claims of appellee.

The assertion of an adverse claim by appellee is found in paragraph XV, as follows:

"Plaintiffs further aver that said defendant claims an estate or interest adverse to these plaintiffs in and to said Poser lode mining claim, and in and to each said Poser and Intermediate veins or lodes as described in paragraphs XII and XIII hereof, and particularly in and to those parts of each of said veins which lie vertically beneath the surface of said group of mining claims of defendant and between the Poser end line planes produced southerly as aforescribed, and has at various places penetrated each vein with its mine workings."

Paragraph XIX is as follows:

"Plaintiffs further allege that said claims and pretensions of defendant as to its ownership of said segments of each the Poser and Intermediate veins existing vertically beneath the surface of defendant's group of claims and between the Poser claim end line planes produced as aforesaid, are without foundation and are groundless and are a cloud on said title and possession of said plaintiffs in and to said Poser lode mining claim, and particularly in and to each the said Poser and Intermediate veins as aforescribed, and which are a part of said mining claim, and that said claims of defendant are without any right whatever, and that defendant has no right, title or interest whatever in or to said extralateral segments of either said Poser

or said Intermediate veins as described in paragraphs XII and XIII hereof, or to any portion thereof."

The allegation of trespass or entry by appellee upon any portion of the veins claimed to belong to the Poser claim is found in paragraph XXII, and is simply that appellee, by means of secret underground workings, had penetrated into the *extralateral parts* of said Poser and Intermediate veins, as described in paragraph XII, which extralateral rights, as described in said paragraph, are those lying beneath appellee's surface, and mined and extracted ores therefrom and appropriated the proceeds to its own use.

Paragraph XXIII alleges that appellee is continuing to, and threatening to continue to, and will, unless restrained by an order of this Court, wrongfully extend its workings upon said *extralateral portions* of said Poser and said Intermediate veins or lodes.

The first paragraph of appellants' prayer in the complaint, asking that appellee be required to set forth its adverse claims, is as follows:

"1. That defendant be required to set forth the nature of its claim in and to said *extralateral portions* of each said Poser and Intermediate veins or lodes hereinbefore described, and that all adverse claims of defendant to the same, or any portion thereof, may be determined by a decree of this Court; that by said decree it be declared and adjudged that said defendant has no estate or interest whatsoever in or to any portion of said Poser or Intermediate veins as hereinbefore described;

* * *"

While it is perfectly clear from the complaint that appellants were tendering no issue except as to owner-

ship of the extralateral portions or segments of the alleged Poser and Intermediate veins, that is, the portions lying beneath the appellee's premises, and that no claim of trespass or adverse claim by appellee to any other part of said Poser claim was intended, the answer of appellee (I, 54-80) beyond any possible controversy sets the same limit to the issue tendered to the Court for trial.

The answer (paragraph VIII, I, 56) admits the ownership by appellee of the group of mining claims adjoining the Poser lode mining claim on the south. Paragraph IX admits the existence in the Poser claim of the vein known as the "Rainbow Lode" or "Vein." Paragraphs X and XI deny the existence in said Poser claim of any such vein designated by appellants as the "Poser Vein" or any such vein described as the "Intermediate Vein," and that any portion of either of said veins on its dip passes through the south side line plane of the Poser claim, or into or beneath appellee's surface.

Paragraph XIII of the answer denies that appellee claims an estate or interest adverse to the appellants, or either of them, in or to the Poser lode mining claim; admits and alleges that for many years last past it had been, and was then, the owner, in possession and entitled to the possession of a group of lode mining claims adjacent to said Poser lode mining claim lying immediately to the south thereof, and of all veins, lodes and ore bodies within the surface boundaries, extended downward vertically, of said lode mining claims, and each of them.

In paragraph XVII (I, 74) appellee makes clear that it makes no adverse claim to ownership of any intra-

linital part of said alleged Poser or Intermediate veins, but that it does claim the ownership of the veins and ore bodies lying beneath the surface of the claims admittedly owned by it, in the following language:

“Defendant denies that it makes any claim to ownership of said alleged Poser and Intermediate veins, or either thereof, or of any segment or segments thereof; but defendant does claim, and hereby alleges, that it is the owner and entitled to the possession of, and is in actual possession of, all veins, lodes and ore bodies lying within the surface boundaries, extended downward vertically, of its lode mining claims above described, and of all of the veins, lodes and ore bodies upon which its workings, referred to in the bill of complaint, have been opened and driven, and which constitute parts and parcels of its said lode mining claims. It denies that any of its said claims are without right or foundation, groundless, or a cloud on plaintiffs’ alleged title to or possession of said Poser lode mining claim.”

The answer contains no prayer for affirmative relief, but merely for a decree of dismissal of the bill (I, 80).

The pleadings, as above shown, demonstrate clearly the incorrectness of counsel’s statement that the bill was brought to quiet title as against adverse claims of appellee to the Poser claim, or any part thereof, or any vein apexing therein, excepting the claimed extralateral portions of the alleged Poser and Intermediate veins lying beneath appellee’s premises.

Under the General Equity Practice, whether under, or in the absence of, such statutes as to adverse claims as are found in Montana, Utah and elsewhere, a general action to quiet title to the entire Poser claim, including undiscovered and undeveloped veins and ore

bodies, and those upon which no adverse claim had been made, could not have been maintained. Probably the most illuminating statement of this rule is found in the case of *Keely v. Ophir Hill Consolidated Mining Company*, 169 Fed., page 601, based upon a Utah statute like that of Montana, (which case is cited by this Court in *Butte & Superior Copper Company v. Clark-Montana Realty Company*, 248 Fed., 609, 617), where the Circuit Court of Appeals for the Eighth Circuit said:

"We are first confronted with a motion to dismiss the appeal on the ground that the controversy between the parties was fully and finally determined in the action at law, and that the present record presents only a moot case in which no effective relief can be granted. The defendants (appellees) contend that no question was tried or could have been tried in this suit other than what was tried in the action at law, namely, which of the parties was the owner of the particular veins which had been discovered underneath the Henrietta claim and from which the ore had been mined? The complainants (appellants) contend that in this suit to quiet title it is competent to determine and settle for all time which party was the owner not only of the veins actually discovered and mined underneath the surface of the Henrietta, but also of all undiscovered and unknown minerals which might perchance lie vertically thereunder. If the defendants are right, there does not seem to be any doubt but what the judgment in the action at law concluded the question involved in this suit, because no other vein whatsoever had been discovered or worked underneath the Henrietta except the ones from which defendants had taken the ore which was the subject-matter of that action.

"The bald question is therefore presented whether a locator of a claim in a mining district, where there may be extralateral rights existing in favor of others who own contiguous or neighboring claims,

may compel all others who may have such extralateral rights to assert and make proof of them within the short time permitted by the rules and practice in equity or be thereafter forever barred from claiming or asserting them. It seems to us that the statement of this contention carries its own refutation. The nature of mining property is such that even if the apex of a vein, ledge, or lode should appear on the surface of a neighboring claim, and much more if one should exist but its existence be unknown, underneath the surface and within the vertical lines of the boundary of the claim extending downwardly, the owner of the claim, and therefore of that vein, might not be able to make proof of the dip and extension of his vein within any short time. It is a notorious fact that there is no way to prove the existence of a vein at any particular place except by actually following and developing a known vein to that place or digging into the bowels of the earth and locating it there. The value and property of a mining claim consist mainly of the developed and undeveloped minerals within it, and not merely of the surface of the claim. In fact the surface is ordinarily of no value except to facilitate the extraction of the minerals under or appertaining to it.

"The statute of Utah upon which this suit was based reads as follows:

" 'Action to determine adverse claim. An action may be brought by any person against another who claims an estate or interest in real property adverse to him, for the purpose of determining such adverse claim.'

"It cannot escape notice that a present existing claim of some adverse right is an essential condition to the exercise of jurisdiction under this statute. Presumptively the owner of the surface of a mining claim owns all minerals beneath it. This presumption ceases when it is made to appear that some vein found underneath the surface has its apex in a claim belonging to another; but the ownership of this apex vein and its dip and descent to

and underneath another claim so as to overcome the presumptive ownership of it in the owner of the surface is a matter of proof, the burden of which rests upon him who asserts it. Inasmuch as the enlarged remedy provided by the statute has been held applicable to mining claims (*Lawson v. United States Min. Co.*, 207 U. S. 1, 28 Sup. Ct. 15, 52 L. Ed. 65), the contention is that the owner of such a claim may institute his suit, establish his ownership of the surface, and thereby cast the difficult and usually impossible burden upon the owners of adjoining claims, whom he may name as defendants, to make immediate proof of their rights, whether they know the facts conferring such rights or not, and practically to assert adverse claims to a thing before they know it exists.

"It is only when a claim of an adverse estate or interest is made that the owner can avail himself of this remedy. If the owner's title to the surface of the mine as a whole is denied on the ground of alleged failure to take some steps essential to its acquisition, the owner might well resort to the statutory remedy and require all claimants to make good their adverse claims to such title or be forever barred from doing so. Here would be found a real and existing adverse claim, one which well falls within the remedial provisions of the statute; but whether a vein exists underneath the surface, or whether it so dips and reaches its apex within the body of a claim owned by another, is always purely conjectural until the facts are ascertained by discovery and development. One can know about and make a claim to the title of a mine, but it is not perceived how he can know about and make a claim to an undiscovered vein which oftentimes lies deep within the bowels of the earth.

"The defendants, in the absence of a discovered and known vein emanating from their claims and extending under the Henrietta, cannot, in our opinion, be said to be asserting an adverse claim to the Henrietta mine within the true meaning of the Utah statute. There is no evidence that they were

making any claim except to the veins which had been discovered and which formed the subject of the action at law. Obviously they could not make a claim until the facts should develop which under the law would give them a right. Their only right was a conditional and contingent one which they might assert, or might not, when the facts arose which would require them to take action.

"No cases have been called to our attention, neither have we in our researches found any, which sustain complainants' contention in this regard. Incidentally, however, it may be stated that the cases of *Boston, etc., Mining Co. v. Montana Ore Co.*, 188 U. S. 632, 23 Sup. Ct. 434, 47 L. Ed. 626, and *United States Min. Co. v. Lawson*, 67 C. C. A. 587, 134 Fed. 769, and *Id.* 207 U. S. 1, 28 Sup. Ct. 15, 52 L. Ed. 65, which concern the general subject now under consideration, disclose that the courts there undertook to quiet title to veins only which were being actually worked and actually claimed adversely by defendants, underneath the surface of complainants' claims. We conclude therefore that from the peculiar nature of mining property, and particularly of those rights known as 'extralateral rights,' no bill to quiet title lies to require possible claimants of such rights to assert them before they are known to exist. There being no such right involved in this case except the one adjudicated in the action at law, nothing appears to be left for the present bill to operate upon."

As to the alleged Poser vein, in which appellants finally attempted to incorporate the vein known as the "Pilot," appellee's position, as shown by its answer and the record in this case, was that, as the owner under United States patents of the group of claims lying south of the Poser, it had developed and mined, and was continuing to develop and mine, the same. It had not trespassed upon any part of the Poser claim or any part of the

Poser or Intermediate veins, claimed by appellants, and made no adverse claim to the same, or any part thereof, excepting that it had mined certain of, and did own and claim the ore bodies lying beneath its premises. Its proof and the Court's findings sustained its right to these ore bodies, claimed by appellants to be extralateral portions of their veins.

Surely, having confined its mining and exploration and its claims to the ore bodies beneath the surface of patented premises owned by it, appellee was not subject to suit for any part of the alleged Poser or Pilot vein lying outside its ground, and in case of action and a plain disclaimer by appellee of any claim beyond its patented premises, and a failure on the part of appellants to show any trespass or adverse claim beyond this, and a finding by the Court upon overwhelming proof that the appellee owned everything that it had mined or claimed, no decree but that of dismissal could be entered.

Keely v. Ophir Hill Con. Min. Co., 169 Fed., 601 supra;

Winford v. Griffin, 1 Fed., 2nd Series, 224, (Circuit Court of Appeals 8th Circuit, 1924);

Davis v. Commonwealth Land & Lumber Co., 141 Fed., 711, (Circuit Court E. D. Kentucky, 1904);

McDonald v. McDonald, 203 Fed., 724, (District Court, Ore., 1913);

Foster's Federal Practice, 6th Ed., Vol 1, Sec. 196, pp. 1123-24.

We quote from Winford v. Griffin, supra, as follows.

"While it is true that a plaintiff, to maintain a suit to quiet title, must aver and prove his title, it is also true that the complaint must show that defendant asserts some adverse claim or interest. If he do not, there is nothing to try as against him.

The nature of the suit is to enable the plaintiff owner to bring into court one who asserts an adverse claim or interest in the property in controversy. The adverse claim constitutes the issue to be tried. Without it there is no issue. There is no allegation in the answer or cross-complaint of Winford and Wine-man that Griffin claimed title to or any interest in Goose Island. It is true that Griffin's complaint alleged that he was the owner of certain sections and parts of sections (which did not exist), including section 12, but it was further alleged that they comprised what is known as Island 87. He made claim only to that island. It may be that the west end of Island 87 extended into what is called section 12, but as to that the record is not clear. In any event, there was no evidence, even Griffin did not testify, that he made claim to what is known as Goose Island or any part of it. Conceding, then, without deciding, that Winford and Wineman own Goose Island, they were not entitled to a decree quieting their title thereto as against Griffin, because he made no claim to it or any part of it."

Foster states the rule as follows:

"Where a disclaimer is made, and it appears that the defendant was made a party without apparent reason, the bill will be dismissed with costs. Otherwise, a decree may be entered without costs against the defendant and all claiming under him since the filing of the bill."

It might be well here to explain, in connection with the pleadings, that the vein called by the appellee the "Pilot" and by appellants a part of their "Poser" vein in the east end of the claim, was not so included under the original bill of complaint. No specific description was given in the complaint of the Poser vein or apex, but the complaint plainly shows that it was not intended to claim the Pilot vein as a part of the so-called Poser. The original complaint alleged (paragraph XII) that

there was within the surface boundaries of said Poser lode mining claim a vein or lode called the Poser vein, the apex of which extends longitudinally throughout said claim from end line to end line "Except for a distance of 52 feet extending from a point 168.5 feet west of the Poser southeast corner to a point 230.5 feet west of said corner, where for said distance said apex of said Poser claim exists south of said Poser south side line." (I, 123-4).

A reference to either of the large models or the surface map of either party will show that this placed the apex of the Poser vein in the easterly part of the claim, a considerable distance south of the Pilot vein.

In appellants' first bill of particulars (I, 43-52), filed January 6, 1926, the apex of the Poser vein in the easterly part of the claim was placed as in the complaint, far south of the Pilot, and this stood until the filing, within two weeks before the trial, almost eight months after appellee's answer had been filed, of the amended bill of particulars, where the apex was moved in the easterly part to coincide with that of the Pilot vein and, upon the opening of the trial, the complaint was amended by striking out this exclusion of the 52 feet of apex, as conceded to the appellee in the original bill.

Whether this vein be called the Pilot or the easterly part of the Poser, no claim was made by appellee thereto. Appellee has not trespassed or mined upon or made any claim to any part of this vein and, as the Court found upon the great weight of the testimony that no part of the ores in controversy lay within or were connected in any way with the Pilot vein, certainly no affirmative decree could be based thereon.

As to the View vein, the situation is substantially the same. At the time of the filing of the suit appellee was, and had been for many years, mining and developing a vein which it called the View vein, beneath the surface of a lode claim owned by it, lying a considerable distance south of the Poser claim. Through United States patent it owned the ground in which the vein was situated, and further, as the evidence showed and as was found by the Court, the vein was of Northwest age and, in addition, lay beneath the north dipping Emily vein, the apex of which for a considerable distance west of any point where appellee had mined, was within appellee's premises, so that appellee was justified by the evidence, and as found by the Court, in believing that it owned the said ore bodies, and that appellants had no title thereto, either through surface or apex ownership. As in the case of the Poser vein, appellee disclaimed any adverse claim to any part of the Poser claim or to said Intermediate vein, which appellants claimed included the said View vein ore bodies, excepting the extralateral portion of same lying beneath appellee's premises. Appellee had not mined or entered upon the said Poser claim except the claimed extralateral portion of said Intermediate vein. The only issue was as to the ownership of the segment of the View vein claimed by the appellants to be part of the "Intermediate," and the ore bodies therein, beneath the appellee's surface, and the Court having found upon all of the evidence that the appellants had not sustained the burden upon them of showing ownership of the ore bodies in controversy through an apex in their ground, the decree entered, that of dismissal, was proper.

But counsel in their brief contend that because of a statement in appellee's brief in the lower court in connection with a discussion of the facts the decree should have been broadened beyond the issues, and should have adjudicated to appellants some portion, not of the Intermediate vein, which the Court's findings had completely disposed of, but a portion of the View vein, another and distinct vein under the findings, as to which, except the extralateral portion lying under appellee's ground and mined and claimed by appellee, no issue had been tendered or made. The statement in appellee's brief, upon a portion of which counsel rely, is as follows:

"They seem to take the position that a vein of east-west age being strike-faulted by a vein of Steward age constitutes a union of these two veins, though they be of different age. Under section 2336 of the Revised Statutes such a condition does not constitute a union, but an intersection, and clearly where two veins intersect, either on dip or on strike, though they do not cross, the one having the older claim on the apex of either vein takes both veins throughout the space of intersection, so that in drift 1550 westerly and in drifts 1338 and 1336, where the View vein and the Intermediate vein are together in the same drift, it is not a union, because veins of different ages do not unite; and in so far as the plaintiffs have the apex of the View vein at any place westerly from the point where the Emily crosses the south side line of the Poser claim, they are entitled to all ore and minerals in the View vein between the plane of their west end line and a parallel plane drawn down through the point where the Emily crosses the south side line of the Poser."

As will be noted, this statement is found in appellee's brief in connection with a discussion of the position

of the View and Intermediate veins in certain drifts, and the effect of the situation as shown upon the View and Intermediate veins, as to there being shown intersections and not unions, in these workings. The statement, even if subject to the construction contended for by appellants, certainly cannot be made the subject of a decree. Appellants tendered an issue as to the extralateral portions of a vein which they claimed they had developed, called the Intermediate vein. The burden was upon them to show that the ore bodies claimed were the extralateral portions of that vein. They failed in this proof, as the Court found, it appearing that the ore bodies not alone lay beneath appellee's patented surface, but were part of another and distinct vein, concerning which no issue had been tendered. Decrees are based upon issues made up by pleadings, and not upon random statements in oral or written argument. This statement in appellants' brief was not called to the attention of the lower Court or appellee, no record was made of it, and no intimation given of any kind that it could or might be used as the basis of a decree against appellee. Certainly some more solemn, understood and accepted admission or stipulation must be shown before property rights can be concluded.

But further, this statement in appellee's brief is plainly misconstrued by counsel for appellants and cannot be given the effect claimed. The statement is that appellants would be entitled to all ore in the View vein between the plane of the Poser west end line, and a parallel plane drawn through the point where the Emily crosses the south side line of the Poser *in so far as the appellants have the apex of the View vein in their claim*

westerly from the Emily vein crossing. In considering the evidence and disposing of appellants' claim to these ore bodies and all of its Intermediate vein, the Court found that the View vein, in which the ore bodies in controversy were found, was a branch of the Emily vein, also of Northwest age, and found that said Emily vein, for a distance of 370 feet westerly from the Poser east end line, apexed in appellee's ground and outside of the said Poser claim.

Westerly from where the development showed the View vein branch joined the Emily there was no evidence whatever as to where the View vein apexed, whether it continued to join the Emily or came up southerly of it in appellee's ground, as well might be the case. The veins had diverging strikes and varying dips, that upon the Emily where the junction was shown being toward the south going up, carrying it back toward appellee's ground. Westerly of the 370 foot plane, the View vein might or might not join the Emily, or might or might not apex in the Poser claim. And certainly, under this admission of appellee, or under any evidence in the case, there was nothing to justify the lower Court, even if the View vein, or any part of it within appellants' Poser claim were in issue, in finding that the evidence had sustained appellants' burden and established an apex of the View vein in appellants' ground and consequent ownership of anything beneath appellee's premises.

In considering the pleadings it might be well to recall to the Court, in connection with this View vein, that a somewhat similar situation with regard to the Pilot existed. Appellants evidently, in filing their original bill of complaint, which was after years of devel-

opment and consideration, considered their so-called Intermediate vein as separate and distinct and as having an independent apex from that of the Rainbow lode, the allegations in the complaint being that in the Poser claim there was the Rainbow lode or vein, the Poser lode or vein, and also the Intermediate lode or vein, extending from end line to end line of the claim. Later it developed that appellants had concluded that the Intermediate vein was merely a branch of the Rainbow in the easterly part of the Poser claim.

In their contention for a decree upon the westerly portion of the View vein, appellants are asking for a judgment upon ore bodies where no adverse claim has been asserted, and to ore bodies undeveloped and unknown, and perhaps non-existent. This Court, with others, has ruled that this cannot be done. In *Butte & Superior Co. v. Clark-Montana Realty Co.*, 248 Fed., 617, it says:

“The Court below properly declined to quiet title to claims resting on an undeveloped or possible junction at great depths beneath the claim. We think the Court had the power to make the decree which was made upon the proven facts, and to leave to future developments and proof other rights not yet made certain.”

In their contentions in this matter, both as to the Pilot and View veins, appellants entirely overlook the issues in the case, and might as well insist that the Court should have entered a decree decreeing appellants to be the owners of the westerly portions of the Emily and Jessie veins. It is admitted by all parties upon the record that the apices of both of these veins pass through

appellee's ground northwesterly and into the Poser claim. But, so far as known, neither party has made any adverse claim against the other on account thereof, and no controversy existed, but both were as much in issue in this case as the Pilot vein within the Poser claim, or any portion of the View vein outside of the ore bodies claimed and mined by appellee.

This contention of appellants will be further discussed upon the facts in connection with our detailed presentation of the Intermediate and View veins, from which will plainly appear an entire lack of support for the suggestions, but the fact that the proposed modifications to the decree were not brought to the attention of the appellee or the lower Court, that no assignment of error was based thereon, and that they are entirely without the issues in the case, we submit, are sufficient to dispose of such contentions in their entirety.

4. Appellants' Attack Upon the Impartiality of the Trial Court.

Certain of the appellants were the successful litigants in the *Elm Orlu* case tried before the same experienced mining judge who presided in this case. His opinion therein no doubt instilled in them a profound respect for his ability, discernment and fairness. Here, the decision being adverse, he is attacked for his alleged partisanship and partiality. This changing attitude dependent upon pleasure or chagrin at his decisions is manifested by this quotation from appellants' brief (p. 111):

"This conclusion of the trial court, couched in such manifestly partisan language, loses all weight when tested in the light of this same trial court's former opinion in the '*Elm Orlu*' case, * * *."

This is not the first time that judges have been subject to praise or denunciation as their favorable or unfavorable decisions met the changing pleasure or displeasure of a litigant. Portia herself was the recipient of just such action at the hands of Shylock. A most learned and high-minded judge may be cast at any moment into judicial purgatory in the mind of the same party.

We hold no brief for the district judge, but we would be no less fair to this court than to him if we did not refute the unjust assertions directed against him by appellants. We quote a few of them from pages 110-111 of their brief:

"It is seldom, however, that a court's opinion, even though adverse, is justly subject to criticism because of its illogical inconsistencies and its evidence of manifest prejudice.

"We cannot refrain from commenting on portions of the trial court's opinion in this case because it repeatedly gives expression to such extreme partisanship that can hardly be said 'to savor of judicial poise.'"

In support of this charge, reference is then made to the court's finding that the North State, State, North Badger and Badger veins apex in appellee's claims. It is not stated by appellants, however, that certain witnesses for appellee identified apices of these veins on appellee's surface, that *none* of appellants' witnesses disputed this, that appellants did not claim that these veins apexed in the Poser claim, and that in any event the law presumes that they apexed in appellee's ground. The existence of the veins under appellee's surface was expressly conceded. Where then is found the basis for a

charge of inconsistency, prejudice and partisanship because the court found (V, 2234):

“Within defendant’s claims are many veins *which without real dispute apex therein, viz., the North State, State, North Badger and Badger veins of east-west age * * **”

But appellants say (p. 111) that “the same criticism applies to segments of the ‘North State’ vein which are claimed by appellee to exist in Poser subsurface territory and to account for mineralization and even stoping, which appellants claim to be a part of their Poser vein.” It is true that on the 700 level and again on the 1000 level, both under Poser claim surface, segments of this North State vein are disclosed. Curiously enough, on the 700 level it is claimed by appellants for the Poser vein, whereas on the 1000 level they disclaim it. These facts will be made clear in our discussion of the geology of those levels. Appellants started a raise on this vein from the 700 level but its dip indicated that it would go up into appellee’s subsurface so appellants got away from it rapidly.

Appellants then proceed with their strictures on the trial judge, and say (p. 111):

“The trial court is of the opinion that the testimony of the experts on both sides ‘demonstrates that the Poser vein is intersected by veins of East-West and Northwest ages,’ and that the conclusions of appellants’ experts to the contrary, ‘are not only valueless, but also are reckless evasions.’ This is also unwarranted criticism, in view of the fact that the court bases it largely upon the fact that these witnesses testified that the Poser vein was a very narrow seam, or crack or wall, with only a small amount of gouge where it cut through the Emily vein.”

The court was referring to the claimed "crossing" of the Emily vein by the "Poser" on the 500 and 700 levels, and of an east-west vein by the Poser on the 1300 level (V, 2237-8). When we come to discuss the 500, 700 and 1000 level workings the astounding contentions of appellants' witnesses which in effect were that a wide Poser vein of mineralized granite abutting upon either side of the Emily, was suddenly converted into a narrow streak of gouge which cut the Emily, will become manifest. And later when it was shown that the throw of the Emily on the 700 was contrary to Mead's stress theories, appellants disclaimed by brief what their testimony had asserted that this streak of gouge was the Poser, and left the situation here without any evidence of crossing whatever!

Appellants' counsel even charge the lower court with evidence of unwarranted prejudice because of his reference to the rather remarkable methods of development employed by appellants in their attempts to develop their alleged rights, both in connection with the Poser and Intermediate veins, that is, instead of establishing their apex and rights in the upper levels, appellants began with the disclosed ore bodies beneath appellee's surface and developed upward in attempts to find connections to apices in the Poser claim.

Plainly, to anyone familiar at all with the respective rights of extralateral right claimants and those arising out of patent ownership of the surface, the remarks of the lower Court might well have gone further. True, economic practice might justify connection from level to level upward where appellants' vein had been established and the connections were for the purpose of making

certain reasonable projections, but as we will hereinafter show in the detailed discussion of the facts, the uncertainty of appellants, at all times until practically the beginning of the trial, substantially a year after the suit was brought, of the location of their alleged Poser vein, in the higher levels and upon the surface, their ineffectual attempts, as shown by abandoned workings, many of which were run after the suit was commenced, to follow veinlets and seams from the 2000 foot level upward, present a rather startling revolution in the establishment and development of rights extralaterally. The record clearly shows that appellants' whole campaign of development was probably the grandest "fishing expedition" on record, and not in search of evidence to support known rights, but in an endeavor to establish something upon which rights might be based. Appellants' conduct of their development work certainly carried them a long distance from the doctrine announced by Judge Hawley in Consolidated Wyoming G. M. Co. v. Champion Mining Co., 63 Fed. 540, 550:

"Hands off of any and everything within my surface lines extending vertically downward until you prove you are working upon and following a vein which has its apex within your surface claim."

We shall not pursue this matter further here. Appellants do not present the structural evidence which would enable this court to weigh the comments of the trial judge. We shall do so later, and we have complete confidence that when this court appreciates what were the theories which appellants advanced in this assault on appellee's ore bodies and treasury, it will be convinced that the trial court spoke with moderation, and

any less emphatic utterance would have been an encouragement to baseless and even unconscionable mining litigation. Nothing said in the *Elm Orlu* case, when properly applied to the facts here, conflicts with the same judge's opinion now criticized. In fact, we rested upon that case with supreme confidence that what the court there said was not a vein in the *Elm Orlu* claim could not be transposed into one in the *Poser* claim.

Again it is said (appellants' brief, p. 12):

"The trial court found this (Black Rock) fault to be 'in the nature of a footwall' of the disputed ore bodies. (Tr. p. 2242, also again on p. 2243.) *How a post mineral fault can act as a footwall for great ore bodies extending through the country for thousands of feet, it is difficult to explain. * * ** *How can a post mineral fault affect and delimit ore bodies already formed?*"

It is perfectly obvious that the court merely meant that in the present position of the Black Rock fault it acted as such a footwall, just as it does with respect to the Rainbow lode in the *Elm Orlu* mine (233 Fed. 547 at 560). It did not mean that the post mineral fault was in place when appellee's veins were formed. The puerile character of this animadversion, repeated on page 109 of appellants' brief, is apparent when we find them using the same expression, on page 10, where they say that "the existence of the *Poser* vein *acting as a footwall* of the ore bodies below affords the only logical explanation," etc. Appellants admit that the "ore bodies below" are in east-west veins, the oldest in order of formation. They claim their *Poser* vein to belong to the youngest or *Steward* series. If any anachronism was committed by the trial court in referring to the Black Rock fault

as a footwall of older veins, appellants have fallen into the same error. In truth, the expression in either case is intended by the authors to mean that as presently located the structure or claimed structure referred to are located in the positions of footwalls.

We are not proponents of the view that a defeated litigant should not forcefully criticize the trial court where the facts justify it. But facts evidencing the propriety of the criticism should be clearly presented. Appellants have not done so. A full and fair disclosure of the geological conditions in the mine referred to by the district court would have established—not refuted—his statement that the “inferences, opinions and conclusions” of appellants’ witnesses *were* “not only valueless but also are reckless evasions.” We hope to establish this as we proceed with a description of the workings from the surface to the 1300 level, and the presentation of the testimony of the respective witnesses respecting their disclosures.

5. Order of the Following Argument.

In the preparation of this brief our principal difficulty has been the determination of the order of statement and argument which will best conduce to simplification and to a clear understanding of a very involved situation by a court which has not had the surpassing benefit which the trial judge possessed in the above respects. The vast amount of testimony relating to the very existence of the “Poser” vein, firmly and confidently denied by appellee, and covering numerous levels from the surface to a depth of over half a mile, and various lines of raises, is all more or less interrelated. We shall try to

make this clear, but necessarily the presentation of facts and conflicting theories will be accompanied by argument.

We have concluded that clarity and an orderly development of the case and especially of appellee's views, which were approved by the court in their entirety, require that we should state (1) the issues raised by the pleadings; (2) the ore bodies involved and the presumptions of appellee's ownership; (3) a few controlling propositions of mining law and practice; (4) the general geological structure of the Butte District and of that portion of it here involved; (5) the operations of appellee over a long period of years without assertion of any adverse claims by appellants and without discovery in the ground of the "Poser" vein structure now claimed by appellants; (6) the theories of appellants and the peculiar and inconsistent methods pursued in their attempted support; (7) the contentions of appellee regarding the divers geological structures which appellants have attempted to assimilate into the "Poser" vein; and (8) the findings of the court. We shall then undertake a more detailed description of the critical workings, and what they disclose, to demonstrate that the great weight of the evidence supported appellee's position and the court's findings; and with the benefit of the geology, destroy the purely "assay" vein, which for the first time in mining litigation has been attempted to be created in the face of structures negating its existence.

We trust the Court will bear with us while we present at some length preliminary features and general geological conditions before engaging in a discussion

of the evidence respecting the "Poser" vein. Our reason is that this "vein" is such a curious conglomerate that the atmosphere of the case and the general underground complications must be appreciated before the pictured vein can be effectively visualized and demolished.

Much that we shall say on these subjects will be directed principally to the "Poser" vein portion of this controversy. That is the major issue, involving as it does large stopes which the appellee was developing and mining for fifteen years before attacked. The ore body claimed on the "Intermediate" is limited to a small stope on the Badger 2800 level. The facts there, while definitely settled by the court's findings in favor of appellee, involve distinct questions which will be separately presented after the "Poser" discussion.

II.

THE ISSUES RAISED BY THE PLEADINGS.

On November 30, 1925, appellants filed their bill of complaint alleging that they were the owners of the duly located and patented Poser lode claim; that this claim was prior in date of location and right to all the lode claims of appellee; and that the discovery vein thereof was the Rainbow Lode. These allegations were later admitted by appellee to be true either by its answer or by stipulations for purpose of the trial.

The bill of complaint then alleged that there was *also* within the Poser surface another vein or lode designated the *Poser* lode, extending

"longitudinally throughout said claim from end line to end line thereof, crossing both of the opposite

and parallel end lines, *except for a distance of 52 feet extending from a point 168.5 feet west of the Poser southeast corner to a point 220.5 feet west of said corner, where for said distance said apex of said Poser vein exists south of said Poser south side line.*

“That said Poser vein or lode has a general southerly dip, and on its downward course and between vertical planes passed through the opposite end lines of said Poser lode mining claim, and between the 1000 foot and 1300 foot levels of the Poser mine workings, it crosses and extends beyond a vertical plane passed through the southerly side boundary line of said Poser lode mining claim, and is found extending downward and beneath the surface of the adjoining group of claims of defendant.”

As will later be shown this bill of complaint was filed after some three years of constant development work for prospective litigation under the Poser surface and also under appellee's premises, with the latter's consent. On the day of the trial, about ten months later, upon appellants' motion, the italicized portion of the above quoted allegation was stricken (I, 123-124), and the bill as so amended finally claimed the entire “Poser” vein apex (I, 8-9). The necessity which drove appellants to this amendment and the important and discrediting bearing it has on appellants' theories will develop as we proceed.

The bill of complaint further alleged that there was *also* within the Poser claim another vein or lode designated for convenience the Intermediate, which also extended from end line to end line of the claim, and on its dip between vertical planes of the end lines descended under appellee's claims (I, 9).

After the filing of this bill of complaint which, as indicated, was most general in its character respecting

the course of the so-called "Poser" and "Intermediate" veins, and where they were disclosed in the numerous mine workings, as claimed by appellants, appellee filed a motion for a bill of particulars. On January 6, 1926, appellants furnished such a bill (I, 42-53), wherein the alleged location of these claimed veins in certain workings was stated. The "Poser" apex was therein laid so as to exclude 52 feet of such apex from the Poser claim, in conformity with the allegations of the bill. The shifting of the assumed apex as later accomplished at the trial, had not then been decided upon by appellants. As to the *Intermediate* vein, alleged in the bill to be a vein other than the Poser and the Rainbow discovery vein, and extending from end line to end line of the Poser claim, this bill of particulars shifted position and alleged that the Intermediate was a *downward branch of the Rainbow*, uniting with it at top of 1250-B raise on the 1,000 level, a point near the center of the Poser claim, and extending for some distance easterly therefrom (I, 50-52). This and other points of alleged union with the Rainbow on the 1300 and 1500 levels, confined the asserted extension of the Intermediate to the eastern half of the claim, and there not as an independent vein but as a branch of the Rainbow.

The bill alleged that appellee had mined upon the extralateral portion of the Poser vein under its surface, calling it the "State" or the "Badger" vein; that appellee had mined on the extralateral portion of the "Intermediate" vein under appellee's surface and in the vicinity of appellee's 2600 and 2800 levels; and that the ores mined by appellee exceeded in value \$6,000,000; and it prayed that appellants' title might be quieted and for an accounting (I, 10-15).

By its answer appellee denied all of these allegations; denied the existence of either the "Poser" or the "Intermediate" veins; alleged the ownership and possession of the various lode claims constituting its group and south of the Poser; and alleged that all mining done by it had been from veins or lodes belonging to its own claims (I, 54-76). Various Montana statutes of prescription and limitation were pleaded (I, 77-80), but in view of the court's findings on the main issue these are now unimportant.

III.

THE LOCATION OF THE ORE BODIES IN DISPUTE AND PRESUMPTION OF APPELEE'S OWNERSHIP THEREOF.

At the beginning of the trial it was stipulated in writing that appellee is now, and since March 31, 1910, has been, the owner of the lode mining claims adjoining said Poser claim on the south, and beneath the surface of which the ore bodies in controversy were situated. (I, 101-5).

The mined ore bodies claimed by appellants are all far within appellee's surface boundaries. Those claimed by virtue of the alleged "Poser" vein are found from 1400 feet to over 3000 feet underground, and measured horizontally from the south side line plane of the Poser claim, are from 70 to 950 feet therefrom. The claimed stope on the "Intermediate" is 2800 feet below the surface and the nearest point thereof is, horizontally, 375 feet from the Poser south side line plane.

We shall not advert at length to the law respecting presumption of title in the surface owner as we are

confident that even if the presumption had been against and the burden on appellee, a decree in its favor was required upon the evidence presented.

Prima facie, these ore bodies belong to appellee by virtue of surface ownership. It was not necessary to establish by way of defense that they belonged to veins apexing in its property, although this was done.

St. Louis M. & M. Co. v. Montana M. Co., 194 U. S. 235.

Mammoth M. Co. v. Grand Cent. M. Co., 213 U. S. 72, 73.

Parrot S. & C. Co., v. Heinze, 25 Mont. 139, 145.

In its opinion herein, the District Court said (V, 2236):

“This burden upon plaintiffs is by no means a light one, for ‘the proof in effect * * * seeking to withdraw or except from a solemn grant over the seal of the United States, premises *prima facie* conveyed by it, must be clear and convincing, in quality and quantity that inspires confidence and produces conviction’. See *Clark-Montana Realty Co. v. Ferguson*, 218 Fed. 963.”

This statement cannot be questioned, and fairly characterizes the duty imposed upon extralateral right claimants.

Heinze v. B. & M. Cons. Co., 30 Mont. 485, 488, 77 Pac. 421, 422.

Stewart v. Ontario M. Co., 23 Ida. 724, 132, Pac. 787, 794.

Colo. Cent. M. Co. v. Turck (C. C. A. 8), 50 Fed. 888, 894.

Grand Central M. Co. v. Mammoth M. Co. 29 Utah, 490, 83 Pac., 648, 677.

Golden v. Murphy, 31 Nev. 395, 103 Pac. 394, 396.

In the two cases last cited and others it has been stated that what is a discovery for the purposes of location of a mining claim is a very different thing from a vein for purposes of establishing extralateral rights. But regardless of this, it is indisputably true that proof of the existence of a vein upon which extralateral rights are claimed, and its identity and continuity must be more clearly established than in cases involving the existence of a vein sufficient to warrant a location.

Fitzgerald v. Clark, 17 Mont. 100, 135, 136; 42 Pac. 273, 283, 284.

Grand Cent. M. Co. v. Mammoth M. Co., 29 Utah, 490, 83 Pac. 648, 677.

Golden v. Murhy, 31 Nev. 395; 103 Pac. 394, 405.

The rule is summed up in 2 *Lindley on Mines* (3rd Ed.), Sec. 336:

“In determining what constitutes such a discovery as will satisfy the law and form the basis of a valid mining location, we find, as in the case of the definition of the terms ‘lode’ or ‘vein’, that the tendency of the courts is toward marked liberality of construction where a question arises between two miners who have located claims upon the same lode, or within the same surface boundaries, and toward strict rules of interpretation when the miner asserts rights in property which *either prima facie belongs to some one else* or is claimed under laws other than those providing for the disposition of mineral lands, in which latter case the *relative* value of the tract is a matter directly in issue. The reason for this is obvious. In the case where two miners assert rights based upon separate alleged discoveries on the same vein, *neither is hampered with presumptions arising from a prior grant of the tract, to overcome which strict proof is required.* In applying a liberal rule to one class of cases, and a rigid rule to another, the courts justify their action upon the theory that the object of each section of the

Revised Statutes, and the whole policy of the entire law should not be overlooked."

This rule respecting burden of proof applies both as to the apex of the claimed vein and its identity and continuity to the disputed area, the solution of which depends upon the formations of the district involved.

2 Lindley on Mines, Sec. 615, p. 1466.

Perhaps the most exhaustive discussion of the necessity of identity and continuity of the vein, is found in *Butte & Boston M. Co. v. Societe Anonyme, etc.*, 23 Mont. 177, 58 Pac, 111, a case involving claimed extra-lateral rights on property in Butte. Therein Judge Hunt said (58 Pac. 113, et seq.):

"The right of an apex proprietor to pursue a vein passing from his side lines is dependent upon whether or not, as a fact, the part or mineral body of vein matter which lies outside of the perpendicular of the side lines of his surface claim is so preserved *in its identity with the lode inside* that it is part of the same vein, the apex of which belongs to the surface owner.

* * * *

"The pursuit of the vein on its dip being, then, the right to be guarded, the identity of the vein pursued must be proven, to make the right availing, where it is contended the vein, after passing beyond the vertical planes drawn through the side lines of the surface boundaries of the location in which rests the apex, penetrates soil the surface of which is embraced within another location. *Identity must always exist.* * * * Identity in mineral deposit should have no significance not usual to identity of many other material things. *It means the same thing, or the same vein.*

* * * *

"In this discussion, however, we do not mean to exclude the need of a continuity sufficient to pre-

serve identity. *The application of the rule of identity of vein should always be made so as to require the miner to trace his lode continuously, if he depart beyond his extended side lines.* There must always be in any lode that 'zone or belt of mineralized rock lying within boundaries clearly separating it from the neighboring rock.' (*Eureka Consol. Min. Co. v. Richmond Min. Co.*, 4 Sawy.302, Fed. Case. No. 4548). Nevertheless, there may be an identical vein, although ore is found at considerable intervals and in small quantities, *if the boundaries constituting the fissure are well defined."*

Out of the great number of cases dealing with proofs of vein apex and continuity, we cite the following as applicable in many respects to the vague and uncertain proofs upon the subject of the "Poser" vein.

Heinze v. B. & M. Co., 30 Mont. 484, 487.

Utah Cons. M. Co., v. Utah Apex M. Co., (C. C. A. 8) 285 Fed. 249, 252.

Colo. Cent. M. Co. v. Turck, (C. C. A. 8) 50 Fed. 888, 894.

Collins v. Bailey, 22 Colo. App. 149, 125 Pac. 543, 548.

Grand Cent. M. Co. v. Mammoth M. Co., 29 Utah 490, 83 Pac. 648-9.

As in the court below, appellants casually state that all that is required of an extralateral right claimant is to create a "preponderance of probability." The vague and uncertain alliterative gem, which has sometimes been used in ordinary cases but never in a suit of this character where a presumption of title must be overcome, has fittingly been imported into this suit. The very name "Poser" by which their vein has been christened for the purpose of this case, aptly defines its characteristics. It is a poser, and any phrase which would lighten the

burden of establishing its existence is a fit accompaniment. But the insufficiency of the word "probability," as applied to extralateral right litigation is well shown by the following excerpt from Judge Hawley's opinion in *Consolidated Wyoming G. M. Co. v. Champion M. Co.*, 63 Fed. 540, 550:

"The court is left in doubt as to the truth. The *impression* received from an examination of the record might be said to be that the *probabilities* are in favor of that vein extending through the Ural ground, as claimed by complainant. But the court is not prepared to say that the fact of its existence to that extent *has been proven to its satisfaction*; and this should be clearly shown before the court would be justified in giving to complainant the right to follow underneath within the surface lines of the New Year's and New Year's Extension claims, belonging to respondent."

Surely the appellants cannot complain of the statement of this principle in the opinion of the lower Court (V, 2236) as follows:

"And plaintiffs can recover only on the strength of their own theory, case and title, and not at all upon any weakness if any in defendant's. Their case may fail of its own inherent weakness, by the testimony of its own witnesses, as well as by evidence presented by defendant. If upon consideration of all evidence, plaintiffs' contentions are no more probable than defendant's, their case fails for want of proof and decree must be against them."

We confidently submit that, even if the presumptions were against, and the burden upon, appellee, a decree in the lower and in this court in its favor would be required upon the evidence.

IV.

CERTAIN OTHER WELL RECOGNIZED PRINCIPLES
RESPECTING MINING LAW AND PRACTICE, AND
BRIEF APPLICATION THEREOF TO THIS CASE.

1. What Is a Vein Depends Upon the Formations and Characteristics of the Butte District.

It will be unnecessary herein to engage in extended definitions of a "vein," and we do not quarrel with those cases cited at pages 81-83 of appellants' brief, referring to vein formations in other states. We are concerned solely with *fissure vein* formations in the Butte District as they have been disclosed by fifty to sixty years of mining operations. There is one well established rule which we invoke, applied by many courts, and which has been settled by decisions of this court. Its application here will serve to refute many theories imported into this case by appellants' experts with practically no experience with Butte structures. It is, in the language of this court, that

"the definition of a lode must always have special reference to the formation and peculiar characteristics of the particular district."

Migeon v. Mont. Cent. R. Co., 77 Fed. 249, 254.

Star M. Co. v. Federal M. & S. Co, 265 Fed. 881
885.

As Judge Hawley said, in *Book v. Justice M. Co.*, 58 Fed. 106, 120, 121:

"It must be borne in mind that the veins and lodes are not always of the same character. In some mining districts the veins, lodes, and ore deposits are so well and clearly defined as to avoid any questions being raised.

*

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"Various courts have at different times given a

definition of what constitutes a vein or lode, within the meaning of the act of congress; but the definitions that have been given, as a general rule, apply to the peculiar character and formation of the ore deposits or vein matter, and of the country rock, in the particular district where the claims are located. There is no conflict in the decisions; but the result is that some definitions have been given in some of the states that are not deemed applicable to the conditions and surroundings of mining districts in other states, or other districts in the same state."

The application of these principles to this case will become manifest when we discuss Butte geology and that of the area here involved.

2. The Probative Effect of Development and Litigation Work and the Acquiescence of the Parties.

Other important rules, which, when applied to this case, tend to demolish appellants' contentions are that the workings of a mine conducted in mining operations are generally far more persuasive than those prosecuted in support of litigation, and that the conduct of the parties while mining work is being prosecuted and the character, extent and futility of litigation work are most significant. Later the application of these principles to appellee's mining work, to the comparatively minor mining work of appellants, and to the enormous amount of their litigation work, a large portion of which was abandoned will become evident. At this point we merely quote from a few decisions supporting this common sense view.

"In all the years subsequent to location of the Black Rock and until this litigation threatened, no workings from the discovery shaft were on the Jersey Blue."

Clark-Mont. R. Co. v. Butte & Superior Co., 233 Fed. 547, 562.

"It is manifest, we think, that there was no evidence to prove the existence of the vein or the outcrop in question, except such inferences as might be drawn from the developments in the Grant raise, the Herrick raise, the O'Mally raise, and the shaft sunk in the Jim Hall tunnel. These raises were put up * * * not for the purpose of obtaining ore, but solely for the purpose of demonstrating either that there was but one wide lode between the porphyry walls, or that one fork of the vein on which the owner of the Aliunde was working had its outcrop within the Colorado Central side lines, and that the defendant was entitled to the vein below the point of junction."

Colorado Cent. M. Co. v. Turck (C. C. A. 8) 50 Fed. 888, 892.

"The workings of a mine, made in mining operations, and not in support of litigation, are generally important as evidence of any facts which may be legitimately inferred from them."

Carson City, G. & S. M. Co. v. North Star M. Co., (C. C. Calif.) 73 Fed. 597, 601.

"In the case at bar, it is proper to consider that the proof of the actual working of the mine, the way it was worked, what was found therein, and the condition of the many open stopes and veins, since many of those stopes have been worked out and from some of them thousands of tons of ore taken, as shown by the evidence, is certainly better evidence of the course, dip, angles, spurs, and character of the vein than any expert testimony that could be given."

Alameda M. Co. v. Success M. Co., 29 Ida. 618; 161 Pac. 862, 867.

"* * * There is much significance in the fact that the four drifts which were driven entirely through the limestone below the workings above were not availed of to prospect the bed thoroughly. A comparatively small amount of this kind of work was done. It is difficult to avoid believing that the

reason lay in the fact that there was no expectation of finding ore in such a formation. * * * *Furthermore, the many short drifts northerly from the workings above, apparently abandoned when they were well into the unaltered black limestone, are mute witnesses that appellant was without hope or expectation of finding ore by going farther into this unchanged sedimentary rock.*"

Utah Cons. M. Co. v. Utah Apex M. Co., (C. C. A. 8) 285 Fed. 249, 255.

"The position that faulting occurred after the deposition of ore, and that the vein was faulted, obscured, practically lost, by the movements along the dyke, is also in harmony with the conduct of the appellant during all the years of operation in the mine; for while, many years ago, the Cunningham stope was worked down to the 300 and the Betsy down to the 500 level, both stopes lying immediately east of the Finn break, the great Klondyke stope, on the 400 level, lying immediately west of the Betsy stope but a little farther south, in the crushed material of the breaks, was not disturbed until a comparatively short time before the commencement of this litigation."

Grand Cent. M. Co. v. Mammoth M. Co., 29 Utah, 490; 83 Pac. 648, 682.

The case went to the Supreme Court, which apparently approved the evidential value of the conduct of appellant, in this language:

"It (the Utah court) finds its conclusions confirmed by the conduct of the Mammoth Company during all the years of operation in its mine, making a strong argument that it is not necessary to re-cite."

Mammoth M. Co. v. Grand Central M. Co., 213 U. S. 72, 76.

"Appellee mined the ore bodies in controversy for eight years before this litigation was com-

menced, and for six years before that time appellant knew that appellee claimed the ore bodies in dispute and was engaged in mining them."

Utah Cons. M. Co. v. Utah Apex M. Co. (C. C. A. 8) 277 Fed. 41, 48.

"I reach this conclusion with the less hesitation because it leaves both parties in the full possession and enjoyment of all rights claimed by them and their predecessors in interest for more than 20 years after the location of their respective claims."

Northport S. & R. Co. v. Lone Pine, etc., Co. (D. C. Wash.), 271 Fed. 105, 113.

3. The Comparative Experience and Knowledge of the Expert Witnesses Respecting the Butte District.

From the beginning of mining litigation, the superior value of testimony of the experienced miner or mining engineer familiar with the particular structures involved, as against that of geologists and experts imported into the district with all their theories (many of which have no application to local conditions), and who have become as highly partisan and oratorical as the lawyer with whom they have been associated, has been the subject of comment by courts.

Cheesman v. Shreeve, 40 Fed. 787, 796.

Utah Cons. M. Co. v. Utah Apex M. Co. (C. C. A. 8), 277 Fed. 41, 49.

Original Sixteen to One Mine v. Twenty One Mining Co. (D. C. Calif.), 254 Fed. 630, 634.

Alameda M. Co. v. Success M. Co., 29 Ida. 618, 161 Pac. 862, 867, 868.

This court has frequently been confronted by this class of expert testimony, and finally in *Star M. Co. v. Federal M. & S. Co.*, 265 Fed. 881, 890, it said:

"Sufficient reference has already been made to the inconsistent testimony and opinions of the dis-

tinguished geologists of the respective parties, the nature of which confirms us in the opinion that *in the consideration and decision of such cases it is safer, and consequently more satisfactory, to rely upon the testimony of expert mining engineers, who are familiar with the mineral formations and deposits of the particular district, and upon the actual work and observations of experienced mining superintendents who have active charge of the work in such mines."*

This preference for mining engineers familiar with the district, is but a common sense expression of the judgment of intelligent men, applied in employment for practical purposes of purchase or development as well as for litigation.

Appreciating the force of this suggestion the appellee endeavored to conform thereto in the expert witnesses who testified in its behalf. Three thereof (Sales, Barker and Steele) were mining engineers whose entire and extended careers had been mainly spent in Butte, but each, especially Sales, having had experience elsewhere; a fourth (Wiley) whose reputation extends throughout all mining states, has been intimately concerned with Butte formations and problems for over thirty years; the fifth (Bateman, of Yale) while not so closely connected with the district, had spent more time there than had any of appellants' experts, with one exception. On the other hand, aside from Roddewig whose experience in Butte had been practically confined to the Elm Orlu mine and covered only six or seven years, appellants went far afield for their choice of experts and could not, without difficulty, have selected men having less knowledge of Butte and its structures than those they chose.

The point cannot be more cogently stated than by summarizing from the record the experiences of the respective expert witnesses in Butte.

For Appellants:

Albert Burch: Residence, Medford, Oregon. In charge of litigation work for appellants since December, 1924. No practical experience in Butte, except that he examined and made a report on one mine (not in the contested area) as to its probable value. His Butte experience limited to the development of litigation in the Elm Orlu-Black Rock and Davis-Daly cases. He has examined but few mines of the district. Since his employment in this litigation in December, 1924, he has spent about one-third of his time on this case (Burch, I, 139-141, 230-5).

George W. Roddewig: Residence, Butte. Graduated as a mining engineer in 1909. His experience in Butte limited to the period since 1919, during which time he has been superintendent of mines of Elm Orlu Company, and has been in the Elm Orlu, Poser, Travonia, Ancient, Moulton and Butte and Superior only. Had charge of plaintiffs' litigation work since it started (Roddewig, I, 302-4).

Warren J. Mead: Residence, Madison, Wisconsin. Now Professor of Geology at the University of Wisconsin. In 1909, he spent a few weeks in Butte on study of a purely scientific investigation of metamorphic problems in the Pittsmont mine and saw no others. No other experience in Butte except in this litigation, on which he has spent a total of 200 days here since 1923 (Mead, II, 529-32, 592-3).

William A. Simkins: Residence, San Francisco. A mining engineer of considerable practice since 1906, but whose experience in Butte has been confined to this case, upon which he has spent 230 days in Butte since 1923, except that during the same period he mapped the Moulton mine (Simkins, II, 700-2, 780-1).

Andrew C. Lawson: Residence, Berkeley, California. Professor of Geology, University of California. First came to Butte to study mines in connection with this litigation in 1923. Spent a total of about three months there, on this case, but none of this was within the year preceding the trial, except since September 13, 1926. No other experience in Butte (Lawson, II, 827-30, 912).

For Appellee:

Reno H. Sales: Residence, Butte. Educated in Montana and at Columbia University, where he graduated as a mining engineer in 1900. He immediately located in Butte, and in 1901 entered the Geological Department of appellee, becoming its Chief Geologist in 1906. Has been largely in charge of the economic development work of defendant company since that time, and has examined and studied practically every property in the Butte district. Has had charge of the geological study and development of the Badger Mine since it was started about 1906 and 1907, and has been familiar with the portion of the district involved herein since 1901. His work here has been on the lines of economic development and operation. He has made many examinations in Butte and elsewhere. (Sales, II, 960-1, III, 1100-1.)

Alan Bateman: New Haven, Conn. Consulting and mining geologist and Professor of Mining Geology in Yale University. As field geologist for Secondary Enrichment Investigation, promoted by the copper companies, he spent about six months in Butte in 1913 and 1915, during which time he became acquainted with about 15 mines, including slight acquaintance with the Badger. This work was to enable him to familiarize himself with structural conditions, relationship of structural conditions to ores, effect of surface waters upon veins, etc. On this litigation he spent 53 days in Butte on underground and field work, since January, 1926 (Bateman, III, 1273-8, 1344-7, 1376-7).

Samuel Barker, Jr.: Has lived in Butte 42 years. Graduated as a mining engineer in 1895. For six years before going to college was an assistant to Butte engineering firms. During the 31 years since graduation, he has been continuously engaged in the practice of his profession in Butte, both in underground examinations and on the surface. Is familiar with and knows fully 70 per cent of the mining claims in Butte. As a Deputy Mineral Surveyor he has surveyed many claims for patent. Has been familiar with much underground work in the vicinity of the area in controversy for thirty years, and has been familiar with its surface for forty years. In 1907 he did surface and underground work on the Butte & Superior properties. He was also engineer for the Pilot Butte Company, which took over the Pilot claim and traced out all of the veins in the Pilot claim, including the tracing of the Pilot discovery vein on the surface. He has been employed both by and against appellee, and was a witness in the second Elm Orlu-Black Rock case (Barker, III, 1378-83).

C. H. Steele: Residence, Butte. Graduated from the School of Mines at Butte in 1916. Shortly thereafter entered the geological department of appellee, and after a brief apprenticeship was assigned to geological field work for a group of mines, including the Badger, and has been directing development work of the Badger from a geological standpoint for 10 years (Steele, IV, 1550-1).

Walter H. Wiley: Residence, Glendora, California. Began as a practical miner 45 years ago. Graduated at Colorado School of Mines in 1883. First work in Butte was 32 years ago. About 31 years ago examined a number of Butte mines for Marcus Daly. Since then has made about 50 trips to Butte, examining a number of mining properties, from the standpoints both of economic development and litigation. Twelve years ago examined the Elm Orlu and Black Rock mines. Six years ago examined the Elm Orlu and the Pilot, especially as to the Emily. His examination of the properties in dis-

pute began about three years ago, and he has spent a considerable period upon it (Wiley, IV, 1675-6).

Appellants' brief contains direct and indirect charges of partisanship against appellee's witnesses, especially Sales, the Chief Geologist of appellee for over twenty years, and the man possessing far more first-hand and detailed knowledge of the Butte District and of the disputed area than all of appellants' witnesses combined. Some references were made below to the past or present employment of other witnesses by appellee. It was said that this Court's expression in the *Star* case of preference for "testimony of expert mining engineers, who are familiar with the mineral formations and deposits of the particular district, and upon the actual work and observations of experienced mining superintendents who have active charge of the work in such mines" was not intended to include regular, or even occasional, employees of a party. Of course, what this court meant was that possession by a witness of thorough knowledge, however derived, of the disputed territory was the great desideratum. Employment, past or present, of any witness for either side, is material only as tending to impair the fairness of his testimony on matters both of fact and opinion. This case has demonstrated what has long been apparent in mining litigation that the testimony of eminent geologists, even instructors in our universities, when retained in such litigation, is as apt to be as partisan as that of the highest or most lowly employee of a litigant, and more apt to be controlled by theories and ignorance or disregard of local geological occurrence, than that of such employee. Experience fully justifies the following

comment upon this feature by the trial judge in his opinion herein (V, 2244):

"In consideration of conflicting opinions anent this 400 to 600 feet, plaintiffs argue that they permanently employ fewer of their experts than does defendant. That seems of little moment. All these experts have compensation to earn, trust to vindicate, opinions and theories to defend, success to win, repute, prestige and fame to achieve, whether as employee, expert, instructor, author or what not, now or in the future."

In answering a similar argument in appellants' trial brief, we confidently left to the court the determination whether from the standpoints of interest and zeal for their clients' case, the professorial "retained" witnesses for appellants were entitled to greater credit than regularly "employed" witnesses for appellee, and we asked:

"Did not the latter exhibit fully as high regard for their oaths and the integrity of their testimony as any specially employed doctor or professor or engineer testifying in the case?"

This question was effectively and truly answered by the court in this language (V, 2237):

"But when it comes to facts, the testimony of plaintiffs' experts, to considerable extent, coincides with that of defendant's experts, demonstrates that the Poser vein is intersected by veins of both east-west and northwest ages, and that their inferences, opinions, and conclusions to the contrary are not only valueless but also are reckless evasions. It would seem that they count too much upon credulity and lack of discernment in the Court."

"Past history, the method of development, the presence of the fault, the absence of a fissure without the fault, the content and structure, the ab-

sence of any 'throw' of the Poser vein where cut by the fault having normal throw of 160 feet, the failure of plaintiffs' theory of Steward age for the Poser vein, the striking differences between the Poser west of the Emily, and the Poser or Pilot east of the Emily, *the reckless opinions of plaintiffs' experts as aforesaid, the reasonable consistency attaching to the opinions of defendant's experts*, render unjustified any finding that the Poser vein exists in this 400 to 600 feet or at all west of the Emily vein, and require the finding that in said 400 to 600 feet is naught but the Black Rock fault." (V, 2245.)

The court then proceeds to state instances justifying its language.

It will be impracticable in this case to demonstrate in detail, the soundness of this statement, but it will be very evident, in a large way, when we come to contrast the efforts of appellants to support their profligate use of red paint in delineating the "Poser" vein, with the obvious geology refuting their theories.

V.

THE GENERAL GEOLOGICAL STRUCTURES OF THE BUTTE DISTRICT AND OF THAT PORTION HERE INVOLVED. ADMITTED VEINS AND FAULTS IN THE DISPUTED AREA.

1. The General Geological Structures of the Butte District and of That Portion Here Involved.

Perhaps the best way to introduce this subject which as the trial court aptly said in its opinion involves "that complex geology for which Butte is noted, at once the sometime despair of the scientist and the delight and profit of the expert" (V, 2233), will be to quote from

its descriptions in its present opinion, and then from its opinion in the *Elm Orlu* case, of which two of the present appellants were the beneficiaries, all of which statements are fully supported by the record herein, and are undisputed.

"The geology is like that in the *Elm Orlu* case. The country is granite. The first fissuring resulted in the great Rainbow and other veins of the east-west age; the second, in the Blue fault veins of the northwest age; the third (in the district if not in these premises), in the fault veins of Steward age; the fourth in the Black Rock fault. These master fractures have many branches, *and in addition, the country is permeated with innumerable mineralized joint planes, crevices, seams, veinlets and veins, to twelve inches in width, slips, faults and gouges, confused and misleading, a network without strike or dip, incapable of identification or correlation, yet traceable to many real or apparent connections.*
* * *

"By and large, it offers no great obstacle to practical mining of commercial veins and ores. *But when it is attempted to identify and correlate these minor seams or veins with greater ones, the former's abundance, ramifications and possibilities, attach difficulty and danger or impossibility, to just solution of the problem.* As always, however, where scientists fail to interpret geological phenomena, the law supplies a just answer, viz.: the ores are the property of the party within whose vertical boundaries they are found." (V, 2233.)

And in the *Elm Orlu* case (233 Fed. 547) affirmed by this Court (248 Fed. 609), speaking of the same conditions in the immediately adjacent and similar area, the Court used similar language (pp. 559-560), and referred to complications there, similar to those here, in the following language most pertinent to this case as indicating *what is not a vein*:

"Three hundred and fifty feet above the raise the country has been thoroughly crosscut by the Clark tunnel and connected workings, *in which are slips, seams, and more than 15 small veins, some in each claim, some of those in one claim as reasonably to be correlated with the Pyle as those in the other. These premises are filled with slips, gouges, seams, veinlets, and veins, and will not permit correlation nor projection of small features like the Pyle at the Elm Orlu 500, save for slight distances.*" (p. 558.) * * * * *

"The stockwork claimed to continue it, even if there, *has neither strike nor limits. It answers no definition of a vein.* * * * *Plaintiffs' evidence that here is only country rock permeated with the joint and quartz seams common throughout the district is persuasive and superior in weight to that of the defendant*" (p. 569). * * * * *

"For defendant it is claimed conjugated quartz seams, stockwork, east of the fault and 250 feet to and across the east end line, are the continuation of the easterly strand of the Rainbow. Plaintiff contends the easterly strand has been cut off by a northwest fault, and that east of the fault is but country, *with some quartz seams parallel to the fault, and some joint and other quartz-filled seams common to the country. Nothing appears here for the distance of 250 feet to satisfy the definition of a vein. Again is no strike or boundaries, save for some individual northwest quartz seams.*" (p. 572.)

This language agreed thoroughly with the contentions made in that case by the successful plaintiffs therein, two of whom were plaintiffs herein, and very appropriately the District Court said in its present opinion (V, 2240):

"The plaintiffs in the Elm Orlu case are two of those in the case at bar. There, it was to their interest to contend as they did, that stock work or net work is not a vein. The Court agreed with them, the law agreed with them. Here, it is to their

interest to about face and contend as they do that it is a vein. In that, the Court cannot follow them. Litigants may change opinions as their interests change, but courts, law and principles of justice have other standards of stability than the kaleidoscopic attitudes and positions of interested parties."

The trial court's description of the many small veins, seams and joint planes which cannot be identified or correlated from level to level is amply supported by the testimony of both parties and has not been and cannot be disputed (Burch, I, 240-1, 253; Roddewig, I, 385; Sales, II, 965-6; Bateman, III, 1277-1279).

An exceedingly forceful illustration of these complications, out of which appellants have endeavored to piece together the "Poser" vein, directly contrary to the position which two of them took in the *Elm Orlu* case, is presented by their own geological map of the 700 Elm Orlu level (Ex. 12), an important level in their estimation, inasmuch as by a generous use of red paint, they have for the first time in their downward course in the mine been able to "trace" their vein from end line to end line (Burch, I, 147). The small blue and yellow lines crossing all of the main workings shown on this map, represent veinlets, seams, etc., such as the court has described in its opinions herein and in the *Elm Orlu* case, as found in the ground by appellants' own experts. If the red paint applied to represent the "Poser" vein were removed, the geology now concealed by it would present substantially the same picture. A copy of this exhibit will be found in Diagram E, appendix.

With respect to the vein systems in the district all witnesses agree that there are two well-recognized systems, the older being the east-west or Anaconda system, the

younger being the northwest or "Blue" veins, the relative ages of these two series being conclusively evidenced by the fact that the northwest veins invariably cut and fault the east-west, the throw being to the left (Burch, I, 240; Sales, II, 974; Bateman, III, 1279; Steele, III, 1552). The best descriptions of the two vein series was given by Sales, with whom there was no disagreement on this feature, at least. He said as to the east-west veins (II, 962):

"They dip to the south, generally, in the south and southeasterly part of the district, and in the northern part * * * particularly on this ground in question, * * * these veins have generally a north dip. In other words, they have a changing dip which corresponds to their change in strike, and dip more steeply in the upper levels to the north and more to the south in the lower levels. Generally the east-west veins are large, more or less complex veins, composed of a number of closely spaced parallel veins, with very many cross-connecting stringers or fissures, and sometimes these are large enough to constitute separate veins as mines. And there are innumerable stringers of ore or vein minerals in the country rock alongside of these large veins."

As to the northwest or blue veins, of the second age, he said that they (II, 962-3):

"have a more general northwest-southeast direction, and generally are later and cut and fault the earlier vein. This is also a very large and important system of veins from which a tremendous amount of ore, of course, has been mined. These blue veins are very persistent on strike, as (and) usually they can be projected with considerable certainty over considerable distance, and they also in places have a change in strike, being more to the east-west as we go north. They are like the east-west veins, they

have a great many branches or, in places, little parallel veins which may criss-cross slightly, and these are—there is also a very great deal of alteration or fracture along the sides of them; not nearly as much as in the case of east-west veins.”

Steward-age Veins. We have left to separate statement a third age of vein because it was to that age that appellants’ experts assigned the alleged Poser. The only witness in the case who professed to have any direct knowledge of the existence or characteristics of this age of vein was appellee’s witness Sales. Years ago, in 1908 and 1913, he had written some scientific papers in which he referred to this third system and mentioned some of its characteristics. These papers became the “literature” and “authorities” upon which appellants sought to construct their “Poser” vein, in similitude, and upon which they attempted to impeach Sales’ testimony on his cross-examination. It was almost exclusively by this cross-examination that appellants attempted to obtain support for their structural theories respecting that vein. In this they signally failed as will be evident from a reading of this cross-examination on the subject (III, 1175-1219).

We have said that Sales was the only witness who had any personal knowledge of Steward-age veins. Appellee’s witnesses Wiley and Barker, whose experiences in Butte antedate all other witnesses, and whose general familiarity with its vein systems is exceeded only by Sales, testified that they had never seen a vein known to be of Steward-age in Butte, and certainly none in the contested area (Wiley, IV, 1715-6; Barker, III, 1458-9). Every witness for appellants claimed that the “Poser”

vein belonged to the Steward age (Burch, I, 148; Roddewig, I, 374; Mead, II, 535; Simkins, II, 703; Lawson, II, 830-1). But not one of these witnesses had ever seen a vein of Steward age. Neither Roddewig nor Simkins ever claimed to have seen one. The only one that Burch and Lawson claimed to have seen was the "Steward vein" (Burch, I, 197-8, 212-3; Lawson, II, 912-3), and as appellants' fifth witness Mead claimed to have seen only one other than the alleged Poser, it is reasonable to assume in the absence of contrary proof, that he also referred to the Steward vein (Mead, II, 671). Yet Sales, who at one time 13 years before the trial, thought the Steward vein to be of Steward age, testified positively that it had since been demonstrated that the "Steward vein" is of east-west age, and *cut by a Blue vein* (Sales, III, 1217, 1272). Though several days elapsed after Sales so testified and before appellants' rebuttal began, thus affording ample opportunity for appellants' witnesses to renew any slight acquaintance they may have had with the Steward vein, not one of them contradicted Sales on this subject. Therefore, so far as appellants' experts claimed that the "Poser" was of Steward age or had characteristics of that age, they were relying on the "literature" and "authorities," namely Sales (Burch, I, 150-1, 212-3; Mead, II, 671; Lawson, II, 913).

Having shown that Sales was the only witness competent to describe any vein of Steward age, we now quote his description (II, 963):

"Now, in addition to these two vein systems I have just mentioned, there are also in *one or two mines* in this district, some evidence of what we call

Steward veins. These are north-east striking veins. They are also faulted (fault) veins. They are much less mineralized and contain very few ore bodies, as compared with the blue veins and the Anaconda vein. These are fault veins; they are *very persistent in strike and on dip*. They are straight mineralized faults. *I think in this district there are only two or three of these veins known.*

"Now associated with all of these veins and vein systems is a certain amount of alteration of the granite which occurred at the same time as mineralization took place. *The alteration is much more extensive in connection with the Anaconda or east-west system than with the later system, but still there is a great deal of alteration of the country rock along the walls of the Blue Vein, and there is much less, in fact, as far as the Steward Veins are concerned. They occur only in the eastern end of the district, in a region which has already been very greatly altered by the Anaconda or east-west vein mineralization, but where separated the alteration is considerably less than with the older vein.*"

Another concise statement of the well-known characteristics of the veins of the Steward system was also given by him (III, 1088):

"The Steward veins as I know them in this district are *strong persistent fault fissures which can be traced and are traced for hundreds and thousands of feet through this district*. They are well defined fault fissures, having large displacements of 50 to 150 feet; they are very persistent in their general strike. They have a south dip; they are generally of about 65 degrees and do not vary much, from this average 65 dip. *They are persistent not only on strike but on dip from the surface down to the deepest levels. They are composed of well defined, strong gouges, as fault veins are, they are accompanied where mineralized by well defined ore bodies with the ore of considerable width in and along and parallel to these fault gouges. In that*

respect they are exactly similar to the mineralized bands of the Blue veins where these strong shoots appear. *As I said, they are persistent fault fissures, cutting all of the northwest structures and east-west structures except the later faults. They do not ever appear as zones of granite, or they are never marked by transverse structure. They are continuous in their own direction, cutting through any structure that happens to be in their way.*"

Later, when we come to discuss the phantom "Poser" vein, we shall be compelled further to discuss the Steward-age veins in order to prove beyond question that the "Poser" is far from the image of its putative family, as originally claimed by appellants, though they faltered somewhat in their reply brief in the court below (Court's Opinion, V, 2238).

The Black Rock Fault. Having presented, in outline, a description of the *vein* systems, their off-shoots, and veinlets, seams and joint planes, themselves sufficiently complicated to indicate grave geological problems, we come now to another fault fissure of later origin which striking through and cutting both country rock and veins, moving the country and the hanging walls of earlier vein fissures downward on the dip of the fault from 150 to 200 feet (Sales, III, 1124-5), has enormously increased those complications. This is the Black Rock fault which traverses not only the territory herein involved but the *Elm Orlu* claim (Burch, I, 144, 289). It was an important feature of the *Elm Orlu* case. It is infinitely more important here because, as we shall show, it has been appropriated by appellants as the backbone or fissure for the alleged "Poser" vein in critical places.

This Black Rock fault is *post-mineral* and is not a

vein. It is even later than the Corra post-mineral fault, also in a portion of the premises. Those facts are conceded (Burch, I, 144; Mead, II, 535; Simkins, II, 703; Lawson, II, 834).

The record justifies the statement that this admission was made most reluctantly. For instance Lawson said on direct examination (II, 834):

"Well, I would say in general in the ordinary parlance of the miners and geologists, that the Black Rock fault *would be named as post-mineral fault*. But it might be so near and followed so closely and gradually upon the process of vein formation and ore deposition that it would be hard to perhaps establish the fact that it was absolutely post-mineral. Well, enough, there might be a fading off of the chemical processes of deposition, even after the Black Rock movement."

And the witness then proceeded to say there were evidences of alteration of the granite to a limited extent along the fault (II, 834-5).

Mead also said (II, 535-6):

"Now, in addition to the three principal vein systems that I have spoken of, there is a later set of fractures in this territory, I think, *represented by the Black Rock fault which are clearly post-ore fractures*. I cannot believe but what when the Black Rock fault and other faults of that age broke through this territory while it was later than the deposition of the ore, that any waters that were circulating in those rocks were probably warm waters, *and that there is from place to place along the Black Rock some slight evidence of hot water alteration of the rock where the waters could get through, but not of the type that we would confuse with mineralization by the ore-bearing solutions.*"

And on cross-examination of Sales, appellants pro-

ceeded on the same line, and he admitted that there was some alteration in and along the fault due probably to some weak solutions passing through (III, 1166-7).

The reluctance of appellants in making the admission definitely in the record, that the Black Rock fault is post-mineral and is not a vein, may readily be imagined when it is remembered that from the 1000 level, under the Poser claim surface, down to the 1300 level, the first one under appellee's surface, appellants go down extralaterally on no continuous structure but the Black Rock fault, and thence continue on it into appellee's veins where, for distances, it becomes a strike fault. It is indeed a faithful guide because as it was the latest fissure it is unbroken and faulted by nothing and, figuratively speaking, it proceeds as straight as the crow flies into appellee's stopes.

But there was no alternative left to the appellants, for two of them, as litigants in the *Elm Orlu* case had contended that the same fault found in those premises was *post-mineral*, and the same judge who tried this case had held with them, saying (233 Fed. on 560):

"It (the Rainbow) has been greatly disturbed and faulted, not only by the 'Blue' veins and other northwest fractures, but also by a later great series of multiple *post-mineral* fractures designated the Black Rock fault. In these premises, the general course of this fault is that of the Rainbow. It is sometimes in four or more strands, sometimes parallel in and along the Rainbow, branching and uniting—sometimes in the vein or along and now the old wall of the vein or itself defining the line of least resistance at the limits of mineralization, and now itself the wall of the vein; perhaps sometimes a strand in the Jersey Blue, sometimes diverging into the country."

Notwithstanding all this, the cross-examination of Sales and the testimony of all of appellants' witnesses leads to the inevitable conclusion that this concededly *post-mineral* fissure, non-existent when the "Poser" vein was formed, and therefore no part of its structure, is emphasized as the outstanding ingredient of the vein itself—the persistent fissure, with clearly defined walls. The record abounds with confusion between the structure of the vein prior to the intrusion of the fault, and the outstanding and only fissure within it, the fault itself. We quote one example. After Sales' statement that Steward-age veins are very persistent fault fissures of great structure on strike and dip, the following *cross-examination* occurred (III, 1187):

"Q. Now just a moment, Mr. Sales, this is a very persistent fault fissure with a very marked continuation on dip and strike, isn't it?

"A. *The Black Rock fault?*

"Q. Yes.

"A. It is.

"Q. Yes, then in that particular it complies with your description of the Steward fault vein?

"A. *The Black Rock except for the lack of mineralization, yes.'*

The course and location of this fault in the contested workings will be discussed further in the next heading, and in the later descriptions of the alleged Poser vein.

2. Admitted Veins and Faults in the Disputed Area.

There are in the premises in controversy the large Rainbow vein, not involved herein (as it was in the *Elm Orlu* case) except as it is claimed that the Intermediate is its branch; the North State, State and Badger veins of

east-west age, *apexing in defendant's property*, and from which the ore claimed by appellants as part of their "Poser" vein was mined; the Pilot, Emily, Jessie, 352 and Edith May veins, all of northwest age and strike, and which on their strikes apex through the surface involved (except that the Edith May apexes to the west) and all of which extend downward through the disputed area. In addition, and as already stated, there are in the ground the innumerable small veins, seams and joint planes, of variable widths from half an inch to twelve inches, incapable of correlation or identification with much alteration of the granite along the east-west and northwest veins, joint planes, etc.

These facts are conceded by appellants' witnesses either expressly or by failure to deny the positive testimony of appellee's except that the Pilot vein is claimed by appellants as their Poser vein insofar as the latter is asserted to exist east of the Emily (Burch, I, 239-241; Roddewig, I, 481; Mead, II, 593-596; Simkins, II, 766; Sales, II, 961-9; 978-9; Bateman, III, 1278-80; Barker, III, 1383-86; Wiley, IV, 1676-1687).

The testimony just referred to fully and unequivocally sustains the following finding of the trial court in its opinion (V, 2234):

"Within defendant's claims are many veins *which without real dispute apex therein*, viz.: the North State, State, North Badger and Badger veins of east-west age, southerly dip, and easterly and westerly strike; the Emily, Mill, Jessie and Edith May veins of northwest age, the first two of northeasterly dip and the last two of southwesterly dip, and all of northwesterly strike; and various other veins. And the Black Rock fault also is therein."

It is true that appellants challenge the finding that appellee's North State, State, North Badger and Badger veins apex in appellee's property. But appellee's witnesses so testified and located their apices on appellee's surface. Moreover, as they are found under that surface, the presumption of ownership by appellee obtains. Indeed, it was not necessary to prove the apices in appellee's property. *St. Louis M. & M. Co. v. Montana M. Co.*, 194 U. S. 235.

There are three structures in the area which require special mention as they play a leading part in the litigation, though other veins are involved as will later be disclosed. Two of them, the post-mineral Black Rock fault and the Pilot vein have been largely "incorporated" in the "Poser" vein to use a favorite expression of at least one witness for appellants later mentioned. The third, the northwest Emily vein crossing the Poser claim obliquely, stands as an ominous barrier to the appellants' aspirations because they must drive their "Poser" vein through it or they are entirely lost. We shall see how they have vainly attempted to do this by main force, again "appropriating" the structure of the Emily and its strands and branches and accompanying altered granite, as the "structure" of the "Poser" vein. We shall describe these three outstanding features briefly.

BLACK ROCK FAULT.

As indicated by the last sentence of the above quotation from the court's opinion, striking through and faulting this maze of mineralization, is the post-mineral Black Rock fault. It represents a strong post-mineral

movement along a plane, striking northeasterly and dipping to the south. To the east of the Poser claim it has been traced for great distances through the Elm Orlu and Black Rock mines, being in those premises largely coincident with the Rainbow lode. Proceeding westerly it leaves the Rainbow, striking somewhat south of west through the Poser claim and dipping into and intersecting certain great stopes of appellee's veins, especially the State vein, in the lower levels in the westerly part of the premises. It is shown to branch for distances, these branches or strands again coming together, and forming in places one strong gouge, where all the movement appears to have occurred in one plane, whereas, when divided the movement is divided among the several branches. The movement along the fault is believed to be between 140 feet and 200 feet, most witnesses agreeing that it is about 150 to 160 feet, and the movement is downward on the hanging wall, the throw depending on the dip of the intersected vein. If such dip is to the north, the throw is to the right; if to the south, the throw is to the left (Sales, III, 1124-6; Bateman, III, 1299-1300; Lawson, II, 876). The trial court found (V, 2234):

“And the Black Rock fault of southerly dip, courses through the Poser claim from end line to end line.”

Though certain of appellants' witnesses profess not to have discovered this, it is undoubtedly true. Their first witness, Burch, who undertook the most elaborate description of the “Poser” vein, admitted it in this language (I, 144):

"Later yet than that we have the Black Rock fault which *traverses the Poser claim from end to end*, though it is not very clearly defined in the upper workings towards the west end, and even in the lower workings it shows a tendency to break up into branches."

It is beyond dispute that this fault crosses the west end line of the Elm Orlu which is the east end line of the Poser claim, and as all witnesses for appellee identify it from top to bottom of the Poser west end line raises, to which appellants point with greatest pride as representing the dip of the Poser vein, it is clear that Burch was correct in his statement (Sales, II, 997, 1003, 1009, 1021, III, 1033, 1041; Bateman, III, 1287, 1295-7, 1304-5, 1321; Barker, III, 1387, 1405, 1412-13, 1422, 1430, 1437; Steele, IV, 1565, 1588; Wiley, IV, 1682, 1689, 1694).

Witnesses for appellants admitted that this fault was in all the west end line raises below the 700 level (Lawson, II, 876), but while admitting that there were gouges in the raises above, they claimed not to be able to identify the Black Rock fault therein (Roddewig, I, 440; Mead, II, 674-5; Lawson, II, 874-5).

The Court's finding on this subject is not only supported, but was required, by the evidence. It said (V, 2243):

"Their (plaintiffs') west line of raises at the Poser west end line plane extended, started on the 2000 level, on the State and North Badger veins some distance west of the ore bodies in them contained. These raises converged to union below the 1600 level, and thence the single raise was carried to the surface of the Poser claim. In the raise which started on the State vein is *also the Black Rock*

fault, and in the raise above the union aforesaid, is the said fault to the surface. In respect to this latter, the evidence is without real conflict."

There is no dispute that the Black Rock fault is found in the 700 level and in all below, of the disputed workings, and that this fault marks the course of the "Poser" vein at places in all of the critical levels, and for long stretches on the 1000 level and below. Whenever in these levels appellants got away from the Black Rock fault fissure or from sections of pre-existing veins incorporated by them into the "Poser" structure, they were compelled to rely solely on claimed transverse or criss-cross structure, mineralized granite, etc. These statements can be better illustrated when we come to describe the several workings. Suffice it to say now that not only were the vital and conclusive findings of the court hereinafter quoted supported by all the testimony for appellee, but they were confirmed by the obvious geological features. A bare glance at the level maps of both parties, after the red painted Poser vein is deleted from those of appellants will support this statement.

THE EMILY VEIN.

This is the largest, best known and most extensively developed vein under the Poser claim surface and in appellants' properties, except the Rainbow. Originally in the Poser claim it was called the Poser vein (Burch, I, 236). At places it appears in two or more branches. It is of northwest or blue vein age, therefore cutting all east-west veins, and it should be cut and faulted by any vein of Steward age such as the alleged Poser if the Poser existed in the disputed territory. It is shown

on the surface and critical level maps of both parties, on those of appellants in yellow color, on appellee's in blue. It has a northwest strike, its apex entering the Poser claim on its south side line 370 feet west of its southeast corner and departing on the northerly side line 50 feet east of the northwest corner (Opinion, V, 2234). It has a steep dip to the north or northeast. As shown by the surface maps (See Diagram A, appendix), it bisects the Poser claim obliquely. On account of its northeasterly dip, it is found farther east in the claim from level to level downward. But on the critical 500, 700 and 1000 levels (See Diagrams D, E, F, appendix), it crosses well toward the middle, measured from east to west, of the Poser claim.

The above facts are all undisputed (Burch, I, 236, 239; Roddewig, I, 373; Mead, II, 595; Sales, II, 969; Wiley, IV, 1681).

This Emily vein is thus briefly described, because of its great bearing on the very existence of the Poser vein described in the bill and attempted to be described in the trial by appellants' witnesses as extending, either in torn segments or in unbroken course as necessities demanded, from end line to end line of the Poser claim. As presently to be mentioned, appellee agreed that the vein appropriated by appellants as their "Poser" vein, *east of the Emily*, was a vein, but that it was the well-known Pilot vein, of northwest age which in its course westward probably united with the Emily vein of the same age, or terminated against it, *and certainly it did not pass through the Emily and was not found on the west thereof. It became essential to appellants' case to establish that their Poser vein did cut through the Emily.* The

preposterous "showing" made by them in this respect, and commented upon in the Court's opinion will be discussed later. All that we desire now is that the Court should appreciate the location and importance of the Emily lode.

THE PILOT VEIN.

As just stated appellee contended that the claimed "Poser" vein, east of the Emily was the Pilot vein, that it was of *northwest* age which, if true, completely destroyed the fabric of a Steward age "Poser" vein, that it either united with the Emily on its westerly course or terminated in the immediate vicinity of the Emily. The identification of this vein as a part of the Pilot—a well-known vein in the premises immediately to the east where it had been the subject of investigation, was made by witnesses Sales, Barker, Steele and Wiley, whose knowledge of the development of the apex of the Pilot and its underground location in workings in adjoining property, convinced them that the so-called Poser vein east of the Emily and down to the 1000 level, was in fact the Pilot. Sales, who later testified more at length, upon cross-examination and re-direct, showing that his knowledge of the Pilot vein dated back to about 1912-1914, when the Anaconda Company bought the Pilot claim (III, 1122, 1132-5, 1240-4, 1264), said (II, 993-4):

"Q. Mr. Sales, you might as well make that clear here. What is that Pilot vein at the east end?

"A. The Pilot vein at the east end is a vein that is well known. It has been developed in the Pilot claim, and running through the Pilot workings into the lower level until passing the 1800,

where it unites with the Copper coming from the north.

"Q. What relation has it to the discovery vein on the Pilot claim?

"A. It is the discovery vein of the Pilot claim.

"Q. You say it unites with the Copper vein on the 1800 level. Have you seen that junction on any other level?

"A. Well, I have seen it on the several levels down in that neighborhood.

"Q. Does it unite with any other vein to the southeasterly there?

"A. Do you mean down in these lower workings?

"Q. Yes.

"A. Well, the Copper vein and the Pilot vein form one vein and they both together unite with the Emily in the bottom levels, forming one vein.

"Q. What is the age of the Copper vein and the Emily vein?

"A. Of Blue vein age.

"Q. What age do you classify the Pilot vein?

"A. The Pilot is a Blue vein, a member of the Blue vein system.

"Q. Do you make any question about the continuity of the Pilot vein of the east end there at the surface or on this tunnel level, or on down through to the 1000 level?

"A. None whatever."

This testimony was confirmed by Steele (IV, 1556, 1613-19) and by Wiley (IV, 1686-7, 1756-60).

Appellants, in cross-examining Steele, with respect to the correlation of the Pilot in 1052 working on the important 1000 level, with its union with the Copper vein on the 1800 level, criticized his projections (IV, 1615-6). But there is ample confirmation on appellants' model which locates the Copper vein to the east of the east end

line of the Poser and just above this and evidently uniting with it is the Pilot vein, the stopes of which are marked "Pilot 1807," "Pilot 1607," and above these Pilot stopes on the model, a raise extends up to the level of the Pilot 1200. For some reason appellants failed to put upon the model the workings upon the Pilot 1200 or 900, or the levels above, but appellee's model does show these workings on the eastern extension of the Pilot vein. Steele testifies that the Pilot vein is disclosed on the 1200 Pilot level (IV, 1616) which is just at the top of the raise above the stopes "Pilot 1607." Appellants' model also fails to show the workings on the combined Pilot and Copper veins to the west, between the Poser east end line and the Pilot stopes as disclosed on their model, but appellee's model does disclose these workings from the end line so far as the model extends to the east. Appellee's model shows that the Copper vein and the Pilot vein unite at the westerly end of drifts 1802 and 1804, and that the stopes on the 1900 level just below show the branching of the Pilot and the Copper just west of where appellants show the stopes of the Pilot vein coming into the Copper vein in the neighborhood of the 1800 and 1900 levels. If the workings on *appellants'* model below the 1800 level be followed, it will be seen that the united Pilot and Copper veins continue in depth and unite with those of the Emily, the latter coming down with a northerly dip to a union with the Copper and Pilot veins united. These workings made in ordinary mining operation, corroborate the testimony and theories of Sales, Steele and Wiley respecting the correlation.

While these model features are east of the disputed

area, nevertheless appellants undertook to depict on their model some of the workings in this eastern territory, but accidentally or purposely they omitted various level workings, raises and stopes upon the Copper and Pilot veins. They did not even paint the drifts upon their model, disclosing the combination of the Pilot and Copper veins westerly to where they join the Emily. Fortunately, appellee's model supplies some of these missing links, and together the situation is clearly disclosed.

But this is not all to sustain the identity of the Pilot vein. Appellants' surface map, Exhibit 5 (Appendix, Diagram A), discloses that from the top of 310-A raise wherein is found the Pilot vein claimed by them as the Poser, the vein continues striking southeasterly under the office building through the surface cuts B-121 and B-122 upon the Pilot claim. Appellee's witness Barker, of long experience in Butte, testified that he traced the outcrop of this Pilot *discovery vein* (which Sales says is the one in question—II, 993) along the surface of the Pilot claim through this area and that *it was disclosed in the Pilot discovery shaft*, which is now covered by the office building on the surface of the Pilot claim, and striking northwesterly departs from the Pilot claim near the southeast corner of the Poser claim, where the top of 310-A raise is located *wherein appellants place their Poser vein* (Barker, III, 1382, 1392-3). Appellants' surface map therefore corroborates the testimony of appellee's witnesses with respect to the outcrop of the Pilot vein and shows that this vein has a general northwesterly course, not only through the Pilot claim, but also through the Poser claim, east of the Emily vein.

Nor is this all. We have just referred to the fact that the Pilot vein is disclosed in the top of 310-A raise, at the southeast corner of the Poser claim. The foot of that raise is on the 300 Poser or Elm Orlu level (P. Ex. 10, D. Ex. 96). Appellants claim this raise is on the Poser, appellee that it is on the Pilot. It will be observed that on this level the raise is still found at the southeast corner of the Poser claim, as on the surface, so the vein has practically a vertical dip. From near this raise there are two short drifts, 310 extending southeasterly and 312 extending easterly. There can be no question but that the vein followed in 310 drift southeasterly is the same Pilot vein found on the surface, as above stated, and of northwest age. According to all of appellee's testimony the vein in 310-A raise is the strong Pilot vein shown in 310 drift southeasterly and that the vein in 312 drift is merely a small branch of the vein turning out to the southeast (Sales, V, 2168-9; Bateman, V, 2191-3; Barker, V, 2206-7; Steele, V, 2216). If this be true and there is a union of the veins followed in these drifts, then the one in 312 drift must also be of northwest age, and not of alleged Steward age, because veins of different ages do not unite. Before appellee's witnesses testified that the Pilot vein, of northwest age, was the one which appellants had appropriated, Burch testified, in discussing conditions near the foot of 310-A raise (I, 200):

"At this point, we also have a northwest vein which comes in against the Poser from the southeast, and apparently *terminates against it*, the Poser vein continuing on in an easterly direction."

The vein which Burch claimed continued on in an east-

erly direction is the one in 312 working, and it will be observed that he did not then testify to a cut-off.

A summarization of appellants' further testimony on this subject is:

From the point of branching of the vein eastward it continues through 310 drift to the end line (Simkins, II, 729). The condition here is not clearly shown, because of the timbers at the bottom of the raise (Lawson, IV, 1872-3); and he could not see "*the junction*" where the veins in 310 and 312 came together because of such timbers (V, 1905). The point where the two veins came together is obscure, but the vein going to the southeast in 310 drift is more nearly vertical than the other whose dip is to the south (Simkins, V, 1922). (It will be observed that the vein in 310-A raise is practically vertical, thus further identifying it with the Pilot or northwest vein in 310 drift.) Burch having testified originally, as above, that he saw the northwest vein "terminated" against the other, testified in *rebuttal* that he believed he saw the Poser vein cutting and faulting "to a small extent, anyway" the northwest vein, "it looks that way to me," but his attention being called to Simkins' original underground notes of the situation (Ex. P. 145), he admitted that according to the notes, there appeared to be a *junction*. *Burch kept no notes* (Burch, V, 1959, 1994-5). Mead did not discuss the relation of these veins. Roddewig thought in *rebuttal* that the vein in 312 cuts off the *larger* vein to the southeast and says he observed this before 310-A raise was put up (V, 2044, 2122-3). The east face of drift 312 is in mineralized granite, the quartz seam appearing there going out southeasterly from the drift (Roddewig, V, 2120-1).

Prior to appellee having done any work in this area, appellants had driven the 310 drift southeasterly showing the direction of the vein (Roddewig, V, 2123).

In the original bill of particulars filed January, 1926, appellants said "310 drift follows one branch or the other continuously from end to end" (I, 45), and this was not changed by the amended bill of particulars, filed two weeks before the trial. In rebuttal, appellants attempted to repudiate their several bills of particulars, claiming that this vein in 310 drift east of 310-A raise was in fact a northwest vein which was cut off by the Poser at the raise or just westerly therefrom; Roddewig says, "just west of the present location of the bottom of 310 raise" (V, 2122). Simkins says the point is obscure (V, 1922). Lawson says the timbers of the raise obscure this *junction* (V, 1905).

The unanimous testimony of appellee's witnesses to the effect that the vein in 312 was merely a branch of the concededly northwest vein in 310, coupled with the conflicts between appellants' witnesses as to cut-offs and junctions, and the confirmation of a branching as shown by Simkins' notes, left the great weight of testimony in favor of the appellee's contentions that these veins were of one and the same age, namely, northwest. Here was one point which was viewed by the trial judge, and while his observation is not specially related in his opinion, his conclusion on the larger issues, indicates that he found in accordance with appellee's position. If the vein in this 310-A raise, at its top on the surface and its foot on the 300 level just described, was a northwest vein, the Pilot, as claimed by appellee that settles the age of the vein claimed as the Poser east of the Emily from

the surface to the 1000 level, for it was not only admitted but contended by appellants' witnesses that this was one and the same vein from the top of 310-A raise at the surface to the foot of 1043-A raise on the 1000 level where they jumped to the Black Rock fault for their Poser structure. For example, Burch followed the alleged Poser vein east of the Emily, up through the 1043-A raise, and those connecting with it above (726-A, 570-A and 310-A) to the surface (I, 179, 193-5). If this vein be of northwest age, the case for appellants is utterly demolished, for it cannot be of Steward age or cut and cross the Emily.

Though appellee was under no burden of proof to show a junction of the Emily and the Pilot, testimony and all geological evidences established it, although it is true that the union of the Pilot with the Emily on the 500, 700 and 1000 levels is not clearly disclosed because of complicated conditions there. Barker testifies that he believes he saw the union on the 1000 level (III, 1423-4, 1470, 1536-43). By some curious process of reasoning, and in an effort to draw a red herring across the issue which was whether the "Poser" vein crossed the Emily and extended throughout the Poser claim, appellants have attacked appellee savagely because the latter has not added to its great expense in defending its property against the litigation, by further developments tying in this portion of the alleged Poser vein with the Pilot vein so as to further demonstrate its identity or by proving absolutely a union with the Emily vein. Appellee does not plead poverty or complain of the enormous outlay to which it was driven by this most unwarranted suit—in which appellants' counsel boasted that they had

expended \$1,000,000 (II, 699)—but its answer is two-fold: first, that the identity of the vein was so certain in the minds of its experienced engineers who had lived in the property for years, that they felt it (as it is) beyond successful attack, and, second, it made no difference what vein this was *east* of the Emily so long as it did not cut and extend through the Emily vein, as appellants alleged, were bound to prove, but failed so completely in proving, as was stated in the trial court's opinion, which we shall verify beyond a question of doubt.

If the Pilot vein, as claimed by appellee, was a north-west vein, it would unite with the Emily of the same age. If it was of the older east-west age, it would have been cut and faulted by the Emily, but no faulted segment has ever been found west of the Emily. If it was of Steward age, as claimed by appellants, it would have cut and faulted the Emily, and been found continuing beyond. The latter was the claim of appellants upon which they had the burden, for as said by the same learned District Judge who tried this case, in the *Elm Orlu* case, where the question is whether there is a union or a crossing, even if the evidence is in equipoise, the decision is governed by the burden of proof (233 Fed. on 571). How completely they failed will be subject for later consideration. These features were clearly stated by Sales (III, 1264) and by Wiley (IV, 1760, 1768, 1770).

Every witness for appellee testified that east of the Emily the Pilot was a strong, true fissure vein of banded structure, easily followed, and that it had never been found *west* of the Emily at any place. As will later be

shown appellants' witnesses admitted that east of the Emily it was the same characteristically strong vein of which appellee's witnesses spoke, and yet *west* of the Emily, where it went west at all, as they claimed, it was a curiosity of criss-cross transverse structure, mineralized granite, with no walls, just ragged edges fading into the country.

The court found that this vein whether the Poser or the Pilot did not exist "at all west of the Emily vein" (V, 2245-6).

We have discussed this Pilot feature at length, because somewhere in this brief it required attention, and we believe it should be understood before going into the structure of the Poser vein in order that the issues may be clarified and narrowed. There are a few other features connected with this vein (1) respecting conditions below the 1000 level, and (2) the total collapse of appellants' efforts to "follow" their vein down, or rather up, in this eastern section of the disputed area. Those will be deferred for later discussion in more appropriate places.

VI.

APPELLEE'S MINING DEVELOPMENTS OVER A LONG PERIOD OF YEARS; THE INSIGNIFICANT MINING DEVELOPMENT ON THE POSER CLAIM; THE CONCEPTION AND PROSECUTION OF APPELLANTS' LITIGATION WORK AND ABANDONMENT OF LARGE PORTIONS THEREOF.

1. Appellee's Developments.

Prior to 1906 the Badger, State, North State, 352, Emily, Jessie, Edith May and Pilot veins were known to exist at the surface of this area, through innumerable

old pits and openings presenting unquestioned apices, and by underground developments in the Moose mine, lessees' workings on the Emily, minor workings on the Pilot and 352, and a crosscut extending through the country from the Diamond 1800 level, disclosing particularly the Emily, Badger, Edith May and Jessie (Sales, II, 969-972; Barker, III, 1382-86). The Rainbow was, of course, a prominent vein, but the only "Poser vein" known to exist was the Emily (Burch, I, 236). The present claimed vein which for purposes of this litigation only, and as already stated perhaps because of its baffling characteristics, has been born and christened as the "Poser vein" had never been disclosed (except as the Pilot east of the Emily), and no miner or prospector ever dreamed of its existence or attempted to develop it.

For the purpose of developing and mining these well-known veins, or at least some of them, appellee in 1906 or 1907 commenced the sinking of the Badger shaft on its property and several hundred feet south of the Poser claim, and the development of the Badger mine into what has become one of the great mines of Butte (Sales, II, 969-972). By 1909 or 1910 the Badger shaft had been sunk to the 1300, 1600 and 1800 levels, and the development of the veins above enumerated began (Sales, II, 971-2). That development has continued ever since and has resulted in the extensive level workings and stopes displayed upon the models of both parties. They have not been influenced by litigation or threat of litigation, but are the result of geological study and direction through the years. About 1913, a representative of appellants or their predecessors applied for access to the Badger mine, which right was granted and has since

been exercised (Sales, II, 972-976), but not until about 1923 did appellee know that appellants made any claims to the ore bodies or ores which were developed or extracted, and not until the filing of the first bill of particulars in this case in January, 1926, was the claimed location of the Poser vein disclosed to appellee (Sales, II, 973). Indeed, the evidence clearly indicated that not until the opening statement of appellants' counsel at the trial of this case, did the appellee know or expect that appellants asserted their vein to be of Steward age (Wiley, IV, 1827). The Black Rock fault was, of course, encountered and recognized and required careful study in the development of the Badger mine (Sales, II, 973-4), but "there has never been a pick stuck in it that I know of, with the hope of finding ore," and "there has never been any drifting done" on it (Sales, III, 1268), and with this appellants' counsel agreed (III, 1268). In all of these economic studies and development of that mine, the presence of a Steward-age vein, the "Poser", was never discovered or suspected, either as a structure or a theory, although if the lode at any place took on its semblance on the 700 level it "would be very evident to any miner" (Burch, I, 150). Other than drifts where the Badger, the State, the North State, and other admitted veins were recognized, there has never been driven a drift, a raise, a stope, or any working on the so-called Poser vein (Steele, IV, 1554).

2. The Claim That Appellee's Chief Geologist Admitted the Existence of the Poser Vein of Steward Age Years Ago.

At pages 75-77 of Appellants' brief under a bold caption that "Appellee's Chief Geologist admitted the existence of the Poser Vein of Steward age years before

this litigation," a most unfair and untrue contention is made. It is apparent that appellants, to relieve themselves both of extreme difficulty and great labor, are endeavoring to try their case in this court by cursory statements of conclusions, having little or no basis in fact.

Sales never did admit in his paper or at any time that the Poser vein of Steward age existed. Appellants refer to his testimony at record pages 1177-1180, 1183-1184. A reading of that testimony will refute appellants' assertion.

When Sales' 1913 paper cited by appellants in support of their claim, was written, he had seen what he since has identified as the *Black Rock Fault*, but which he called the Poser *fissure* (not vein) in his paper, in two or three places in the Badger mine, one on the 1800 level and one on the 1300. It had the appearance of a strong fault gouge and not having correlated it with the Black Rock fault, and it having a southerly dip, he included it in the Steward system of *fissures* in his paper but not as a vein (Sales, III, 1177-1180). He states definitely that he did not, by his paper or otherwise, describe this as a vein (III, 1179-80):

"I included this Steward system of *fissures* and a number of northeast fissures crossing this district and a group in that system of northeast *fissures* that I had seen. Now, I said in this paper also that there was only a very slight mineralization and *in only one or two cases was there any mineralization in the Steward fissures*. I certainly did not call every Steward fissure a vein at that time mineralized."

And again (III, 1181-2):

"Q. But you didn't classify it (the Poser fissure of the paper) then as a vein?

"A. No, I classified it in the Steward system of fissuring, not a vein in the Steward system of veins, I think, *but as I stated in the paper undoubtedly many of these are unmineralized and therefore are not veins.*

"Q. And you regarded this as unmineralized and therefore not a vein?

"A. Well, I didn't regard it as being mineralized, I am sure."

His paper fully corroborates this testimony. Therein under the heading "Classification of *fissures*," he groups into several systems according to age (1) the east-west veins, (2) the Blue system, (3) the Mountain View Breccia fault, (4) the Steward system, (5) the Rarus fault, (6) the Middle fault (Sales, III, 1182), and under the heading "Steward Vein *Fissures*"—not veins, he said (III, 1183-4):

"They cut and displace the quartz-porphyry dikes and the veins belonging to the Anaconda and Blue systems. The Steward *fissures* strike slightly more northeasterly than the veins of the Anaconda system, though the angle of intersection is very acute, often forming strike faults along them. Referring to Plate 1 (which was not introduced in evidence), it will be noted that these *fissures* are more or less regularly spaced from north to south and that the strike does not vary much from a N. 65 degrees E. course. The dip is uniformly to the south, ranging from 50 degrees to 75 degrees with an average approximating 65 degrees. The most prominent members of this series, naming them in order from south to north, are the Rob Roy, No. 16, Mollie Murphy, No. 6, Steward, Modoc, La Plata, and Poser."

The following testimony explains this inclusion of what Sales called the Poser fissure in the Steward series (Sales, III, 1184):

"Q. Now, you regarded this Poser fault as one of the most prominent members of this Steward series, although you have seen it as you say now only in this place on the 1800 level and this place on the 1300 level?

"A. Yes, it was a *strong looking fault* on the 1800-foot level, and it certainly appeared to be a fault that would have considerable extent, and whatever I may have designated *it at that time it has been developed everywhere since the publication of that paper and it certainly has been demonstrated to be the Black Rock fault, and the more southwesterly strand or branch of it, which I had called the Poser fault and which was developed in one or two places later, being only a small branch rather than all of it, and that is also a part of the Black Rock fault.*"

So much for this. Appellants say that "the point where he (Sales) had seen this fissure on the 1800 level is where appellants now place their Poser vein" (p. 76). Of course for, as Sales says, the Black Rock fault is there.

3. Poser Claim Developments and Litigation Work.

The history of the development of the Poser claim presents an entirely different story. The Rainbow lode, as shown on the models, had been developed to some extent. The Emily vein, under the name of the "Poser", had been mined and stoped by leasers in the upper levels, where it is now claimed that the present "Poser vein" comes into contiguity with it, apparently without discovery by the miners of the persistent vein structure now said to have been before their eyes. In fact, above the

Poser 500 level the Emily and the Rainbow, and to a lesser extent the 352 and the Pilot, were the only veins developed within the Poser claim boundaries (Burch, I, 236-7; Sales, II, 969-971). Burch did claim that there was a "little bit of prospecting within the Poser vein," practically at the surface on the east end and "there is a little stope which was made by leasers, I don't know when" (I, 237), but this was, in fact, on the Pilot, now called by the appellants the Poser. A little work had been done on the 500 level at least as early as 1913, and on the 1000 level considerable drifting had been done which is highly significant inasmuch as it indicates how the "Poser" vein was never discovered in *mining* operations although its present claimed location had been penetrated by at least two workings on the 1000 level, and required the litigation expert and litigation development to discover its baffling but "obvious" characteristics. This is explained in our discussion of the 1000 level (Post, p. 167).

As above stated, since 1913, appellants have had and exercised the privilege of examination of all the Badger mine workings. We doubt whether the history of mining operations anywhere will show the granting by a mine owner to an adjoining proprietor of such unlimited license to conduct a wholesale fishing expedition, or of such free exercise of that license. Here is cogent evidence not merely of the good faith of appellee, but of the opinion of its geologists and engineers who had practically lived in the mine since its inception, that nothing in the workings disclosed, and no workings which appellants could drive, would disclose, the existence of adverse rights. The results have justified that opinion.

About 1922 or 1923, appellants began what they called in the court below "a campaign of development," one of the phrases which the District Judge properly alluded to as a striking characterization of what was done (V, 2242.) It was, in truth, a campaign *for litigation*. Burch, the litigation manager for appellants who appeared upon the scene in December, 1924, as successor to the prior litigation manager, who did not appear at the trial (Roddewig, I, 371), testified in effect that all work done by him since that time was litigation work (I, 231), and respecting the prior work he said (I, 233):

"Q. And did you also for your information in connection with your work here, learn what work had been done previously in this area as mine development as distinguished from litigation work?

"A. Yes, I think so. *There was not very much mine development done.*

* * * * *

"A. *Not very much, comparatively little.*"

Steele, who was actively engaged for appellee in following appellants' "campaign of development" testified that substantially all work done by appellants in the critical levels down to and including 1300 had been done in connection with the litigation (IV, 1559.) This is so clear that it is futile for appellants to claim otherwise. The very few places in the record where its witnesses were careful to emphasize a piece of work as *mine* development evidence that the great body of mine workings was purely and simply for litigation.

Whether appellants conceived the character and constituents of their "vein" as this work proceeded, and practically until the eve of the trial, is at least doubtful. After carrying on this work under the Poser surface for

some time, they obtained an agreement from appellee, a copy of which is attached to the bill of complaint (I, 18), that each party should have the right to carry on development under the other's property, at its own expense, and also the right to inspect all workings within the disputed area—a right which had been enjoyed, as already stated, since 1913. A calculation from appellants' maps and model indicates that approximately 21,000 *feet* of horizontal litigation work has been done by appellants for the "development" of the Poser vein, from the surface down to and including the 2000 Elm Orlu or Poser level, of which about 4,300 feet (exclusive of 1,200 feet on the Pilot) are now claimed to be on the "Poser vein" to which, in fairness, should be added about 6,500 feet of crosscuts, etc., to reach the "vein." About 8350 feet of raises have been driven by appellants throughout the mine to develop the "Poser," and of these about 2,500 feet *have been abandoned*, and 1,000 feet are on the conceded Pilot east of the Emily. It is conceded that the following raises have been abandoned: 1-A, 3-A, 6-B 8-A, 747-B, 716-A, 1070-A, 1075-A, 1090-A, 1348-A, 1356-A, 1356-B, 1356 winze, 1555-A, 1572-A, 1572 winze, A-1604, A-1601, A-1827 and A-1835.

(Burch, I, 282, 286-7; Sales, III, 1161-2).

It was contended by Burch that 716-A and 1075-A raises were driven for mining purposes, but this is extremely questionable and his testimony was purely hearsay as they were driven before he came into the case (I, 287). 716-A was started upon the *North State* vein on the 700 level, where appellants did a little stoping upon their "Poser vein" (*North State* vein) in the con-

tested area, and instead of following the vein at its foot it went up in a northerly direction entirely off the vein and crosscuts were driven from it. This is shown on appellee's cross-section 306 (Ex. 123), and by the testimony (Sales, II, 1022-3; Steel, IV, 1568). 1075-A raise immediately below 716-A was driven largely on the North State vein from drift 1058 on the 1000 level—prelitigation working on that vein, and not claimed as the Poser (Sales, III, 1034; Lawson, II, 898). Roddewig, the only appellants' witness in a position to know, did not testify on the subject.

We call special attention to the abandoned workings at the east end of the claim in that segment occupied down to the 1000 level by the Pilot vein which we have discussed at length (Ante, pp. 78-86). Appellants' bill of complaint had claimed that the Poser vein traversed the Poser claim from end line to end line, and they set about making the proof fit their allegation. What we now say may best be illustrated by reference to appellee's cross-section along the Poser east end line plane (D. Ex. 119), Appendix, Diagram R. It will be observed that the admitted vein which appellee says is the Pilot and appellants the Poser, had come down from the surface on a vertical or slightly northerly dip and at the 1000 level, in 1052 working, it was still well within the Poser claim and was not dipping to appellants' liking into appellee's property, so appellants pursuing their practice of starting in appellee's ore bodies and working up instead of developing their vein downward—a "method of approach" animadverted upon in the trial court's opinion (V, 2242), raised upward from appellee's workings *on the North State vein*. They got up to the 1300 level, then started 1356-B

raise on a little seam which became so small that "it is about the width of this wire on this model," but having, for appellants, the superlative virtue of a southerly dip, then crosscut, picked up a branch of the Emily vein and drove on that through 1090-A until it assumed a northerly dip and ended in granite (Sales, III, 1161-1163). Here appellants' case at this end of the claim exploded, for even with the aid of seams, veinlets or joint planes they could make no connection with the Pilot (Poser) vein. This resulted in the abandonment of 1090-A, 1356-B, 1572-A and A-1601 raises, 1572 winze and A-1827 raise along this east end line plane. The following cross-examination of Sales is illustrative of this feature and is undisputed (III, 1162-3):

"Q. And this series of raises was run by the plaintiff, according to your knowledge of the situation, in order to connect certain stopes below with what the plaintiffs conceived to be the Poser vein in the Poser claim?

"A. Yes; they started on the North State vein the lower levels and gradually left the North State vein and followed another small slip or stringer that could be found with a south dip; and 1356-B raise was driven on one so small, so that at the end of the vein it is just about the width of this wire on this model. There the drift (raise) continued as a crosscut through, and they picked up a branch of the Emily vein with a south dip.

"Q. That has nothing to do with the present controversy, Mr. Sales. That merely indicates the failure on the part of the plaintiff to make connection upward from certain stopes claimed in the original complaint?

"A. Yes; a very marked failure.

"Q. But it has nothing to do with the stopes now claimed, has it, either on the Intermediate or alleged Poser?

"A. I don't know about that; this raise was being carried upward from the connections below, with the very same ore bodies that are again claimed as a branch of the Poser vein to the southeast."

It was to this situation that the court refers when it says in its opinion (V, 2242):

"Their (appellants') line of raises from ore bodies in east-west veins near the Poser east end line plane extended, failed to connect and was abandoned."

On this subject, the following statement of Burch upon direct examination in the early stages of the trial before the above facts developed, was to say the least disingenuous and misleading (I, 148):

"At the eastern end there has been no attempt made to follow the vein downward along the end line, because in that section there were no ore bodies that could be involved in this action to be reached."

As a matter of fact appellants made prolonged, diligent and costly effort in about 1,200 feet of raises, abandoned only about two weeks before the trial, as presently mentioned, and through meandering worm-like horizontal workings, to develop their Poser vein downward through this territory, and on cross-examination Burch was practically compelled to admit this though he claimed that it was "the south branch that we attempted to develop" (I, 282).

Reference to the original bill of particulars filed in January, 1926 (I, 43) and the amended bill of particulars, filed October 15, 1926, the day the trial commenced, but served October 2, 1926 (I, 89), will serve to illustrate the change of appellants' front required by these developments at the east end. In order to visualize the changes

of location of the alleged Poser vein between these two dates, appellee introduced, as Exhibit 137, a series of small maps, upon which in distinctive colors explained by the legend, there are shown the location of the Poser vein as specified in the original bill of particulars, and changes in location as given in the supplemental bill, with the designation of the development work done between serving the two bills (Steele, IV, 1670-74). We shall have occasion later to show a radical change of position with respect to this alleged obvious vein on the surface and the upper levels, and confine ourselves now to those resulting from the breakdown of appellants' workings in the east end.

Diagrams K, L, and M, appendix, contain copies of the bill of particulars maps of the Elm Orlu 1300 and Badger 2000 and 2200 levels.

At the time the original bill was filed appellants were busily engaged in the above mentioned endeavor to drive their Poser vein down the plane of their east end line through which their bill of complaint alleged their vein passed. Referring first to Diagram K, 1300 Elm Orlu level, their original bill placed a branch of the Poser vein in 1356 drift easterly from 1357 crosscut and in 1356-B raise from this drift, these workings being near the east end line plane of the Poser claim; also placed the Poser vein throughout drift 1348 (I, 46). But the wrecking of appellants' plans when 1090-A raise, extending upward from 1356-B raise, in this east end, ended in granite, required appellants to abandon by their amended bill, the section of 1356 drift above described, the entire 1356-B raise and the easterly 80 feet of 1348 drift (I,93-4). This left appellants' most easterly claimed

exposure of the Poser vein on this level, in 1376 drift, over 200 feet west of the Poser east end line plane, and whether appellants denominated their vein in their abandoned 1356 drift and raise a branch, or not, it was the only means originally devised to reach the ore bodies in this easterly section. This was a disconcerting admission, but an additional working, driven by appellee meanwhile, presented possibilities which appellants seized, principally in order to bolster up their claim that the Pilot vein *sub nom* Poser, on the 1000 level above continued down as the Poser, a subject later discussed (post. pp. 189-193). This arose through *appellee's* extension of drift 1378 easterly to and beyond the Poser east end line plane to a connection with the Black Rock fault in the Elm Orlu, thus demonstrating the identity of the fault through that claim and the Poser claim. This extended drift is conceded by all witnesses to be on the Black Rock fault (Burch, I, 262), and appellants do not even claim it as the Poser vein. But after it was run *they* ran some workings southerly therefrom a short distance west of the Poser end line plane projected, numbered 13006 and 13021, and placed short segments of their vein in sections of these workings, for the purpose of projection for a long distance to the west by a liberal application of red paint superimposed over yellow paint depicting a northwest vein. A glance at the bill of particulars map of this 1300 level will indicate the shifting of position of the Poser vein north a distance of 250 feet between the dates of the two bills. We discuss later the flimsy basis for imagining the Poser vein in these workings (post, pp. 189-193). Another remarkable thing is, that the long north-south crosscut 1357 had been run by appellants long

prior to the original bill of particulars. If the Poser vein has been exposed in appellants' new workings 13006 and 13021, immediately adjacent to this crosscut, the vein must have been disclosed in the latter, but it is not placed therein by either of the bills, although testimony of appellants' witnesses fixes the vein across this crosscut. Appellants' only excuse is that the vein located in the original bill was a *branch* of the Poser, whereas the amended bill describes the main Poser, and that it required the new workings to disclose the vein. We reply that this is a mere play on words and that it demonstrates the fragile and delicate qualities of the Poser vein. Much more can be said on this situation, but we defer it to its appropriate place—the discussion of the geological conditions on 1300 level (post, p. 179).

A similar shift of position is noted on Digram L, the 2000 Badger. In the original bill it was stated that a branch of the Poser was followed by 2012 and 2014 drifts throughout (I, 48). This covered a length of several hundred feet on either side of the Poser end line plane. The catastrophe to the east end line raises resulted in the elimination of all of this distance by the amended bill except the northwestern 60 feet of 2012 drift (I, 94, 100). Both of these drifts are on appellee's State vein. How that "inferior" structure could have been mistaken by appellants for their claimed persistent Poser vein must have been a matter of chagrin to Burch and associates. If they could have made 1090-A raise above run up to the desired place on any sort of a shoe-string seam, or if the Black Rock fault, which in the east end of the Poser claim lies too far north to reach appellee's veins, had benignantly changed its course to solve

the "problem in hand," a different tale would have been told.

On the Badger 2200 level (Digram M) the situation is similar to 2000 Badger just discussed, and the same reason which controlled the amendment of the bill necessitated a change here. The original bill placed a branch of the Poser vein in 2212 drift eastward from its junction with 2214 (I, 48). This carried the alleged vein a distance of several hundred feet across the east end line plane of the Poser claim. After reflection from January until October, 1926, it was concluded that the unmistakable vein in 2212 drift was the State vein; not the Poser, and the working was eliminated (I, 94).

After several years intensive "development" work and study, the original bill of particulars concluded with this reservation (I, 52):

"The foregoing statement of particulars is made in the light of the best information available to plaintiffs at the present time and they make said statements with the distinct understanding that subsequent development work and disclosures may hereafter require a modification thereof in certain particulars."

Two weeks before trial the amended bill concluded with precisely the same reservation (I, 94).

As appellants were themselves in doubt and searching for new clues up to October 2, 1926, and were in fact on the trial compelled to abandon claims made in their amended bill, including vital parts of the apex theory, and to make claims not asserted in either bill, as later herein shown, their prayer for a decree taking from appellee the valuable ore bodies mined without protest

for so many years, based upon their mysterious and elusive Poser vein, certainly cannot appeal to this court of equity.

The abandoned drifts and crosscuts at and above the 1300 level, in the area still in controversy, will be mentioned in our subsequent discussions of the several levels. They and those above related are mute witnesses to the desperate and unsuccessful efforts of appellants to find *in the ground* their vein, which their expert witnesses attempted to locate *in their testimony*.

There never was a case where the comments by courts upon the evidential value of legitimate mine workings, litigation workings, especially those abandoned, and general conduct of the parties (ante, pp. 50-53) were so thoroughly exemplified as in the suit at bar.

VII.

POSER VEIN—ITS STRUCTURE

All Butte veins must have structure, in its absence all other criteria fail, including assays. Appellants realized this and endeavored by development and testimony to establish the structure of the Poser vein. Butte veins are true fissure veins. Consequently it was necessary to describe this vein with an accompanying fissure wherever that could be done. The Pilot vein, the Black Rock fault (and its accompanying drag ore and segments of intersected veins), and portions of the North State vein came in handily in these respects. But there was a wide area where they were not found, and northwest veins, especially the Emily and the Jessie, had to be crossed. Through this area segments of these northwest veins

and their accompanying alterations of the granite and the general interlacing but uncorrelated veins, veinlets and seams were literally appropriated and "absorbed" into the Poser vein, as a transverse structure vein.

Appellee's coveted ore bodies were below the 1300 level and it was necessary to demonstrate that they belonged to a vein apexing in the Poser claim about a quarter of a mile above. While ordinarily a vein is developed from surface down, that practice was reversed here and starting from their goal, appellants worked cautiously upward (Opinion, V, 2242). By the time they reached the court, they changed their tactics and adopted a happy medium. In examining their witnesses, they started first on the 700 level, where they claimed that the Poser vein was for the first time proven from end line to end line, and played both ends against the middle, "tracing" the vein first downward to the ore bodies and then upward to its alleged apex.

In our description of the workings and their disclosures we shall proceed along the recognized and legitimate course of starting with the surface and proceeding downward. In doing this we shall limit the detailed discussion to those portions of the workings down to and including the 1300 level. This is the critical area as the 1000 level is the last under the surface of the Poser claim and the 1300 is the first extralateral level. If the fact be, as we shall demonstrate, that from the 1000 to the 1300 level across the Poser south side line plane, no Poser vein is followed but merely the Black Rock fault, nothing is left of appellants' case. But the situation will be clarified if, before proceeding, with these detailed discussions of the various levels, a general statement be

made (1) describing the age and characteristics of the Poser vein according to appellants' witnesses, (2) appellee's contentions as to its constituents, and (3) of the *District Court's* findings.

1. Appellants' Theories.

In determining in which of the vein systems recognized in Butte they would place their Poser vein, appellants had a difficult task. If there existed in the Poser ground any geological structure which would conform to vein structure recognized in the district, the problem would have been settled, as structural details of the claimed vein and its occurrences when it met other veins would have given it its place. The finding of such a conglomerate hybrid structure as the "Poser" was a herculean task. The vein could not be given an east-west age for the strong characteristics, plain boundaries, persistent general mineralization, even from the surface down, and other features of veins of that age precluded any attempt to compare the "Poser" structure with east-west veins. The Poser could not be labeled a northwest or Blue vein, because that field was already occupied from the surface down by such strong veins of that system as the Emily, Jessie, 352 and Edith May. No northwest vein could be carried along the path of the claimed Poser easterly and westerly across this claim through northwest veins, as that would be a geological freak. There was difficulty enough in utilizing the Pilot east of the Emily as part of a claimed continuous structure. There are also substantial differences in structure between the northwest or Blue veins, as recognized and described, and the best picture that could be painted (in red or any other

color) of the claimed Poser west of the Emily or anywhere below the 1000 level.

Thus, appellants were restricted to the only other structure which had been recognized by any one in the Butte district, the so-called Steward fault veins. Baffled by developments in the ground, appellants turned to the "literature" and "authorities," and they found, as such, papers of Sales written in 1908 and 1913. By taking isolated portions of these, and with the aid of imaginative reading and the post-mineral Black Rock fault, they proceeded to develop a structure for their Poser vein which, we submit, they could not locate in the mine, and the suit was begun. Throughout the trial and to and including the opening brief in the court below they asserted that the developments on the Poser disclosed it to be of Steward age, that it had all the characteristics of veins of that age, and that upon this the evidence was clear and overwhelming. In appellee's brief, replying to this dogmatic statement, it was indubitably shown from the evidence that the Poser vein lacked all essential characteristics of Butte veins in general and Steward-age veins in particular.

What then happened is truly stated in the District Judge's opinion:

"Plaintiffs' theory that the Poser vein is of Steward age, is that upon which the suit has been tried. It is so far vital to their case, that if not proven, but little if any further consideration is due that part of it. (V, 2236.)

* * * * *

"In their reply brief, however, *plaintiffs tentatively suggest that a vein of any age and structure will serve their purpose, and that perhaps the Poser*

vein is of some age and form heretofore unknown. If it be granted that this belated change of theory and position is open to plaintiffs, what is their case?
 * * * * " (V, 2238).

That is exactly what appellants attempted by their reply brief. Their argument amounted to this: We (appellants) have established that the Poser vein has the attributes of Steward age veins as described by Sales who is the only witness who has seen one. But Sales claims to have seen only two or three in the District. His knowledge (upon which *we* have exclusively relied) and testimony (for appellee) is therefore worthless. Because he says that the Poser does not possess the characteristics of Steward age veins known to him, it does not follow that in other portions of the district (namely, in the disputed area) there may be Steward age veins having the Poser's characteristics, *about which nobody knows*, and not described in the district's "literature" or "authorities." Steward veins, as appellants call them, are not of any special age, they may be of any age following the east-west and northwest ages.

This was *reductio ad absurdum*.

Now as to the Poser's structure. Its first witness and litigation manager, Burch, gave the following general description of the vein (I, 148):

"It, at one end is a simple fissure. *Perhaps* I might say even at the other end it is a simple fissure. In the middle there is the usual transverse structure that is found in veins of the Steward system."

The "one end" where Burch said the vein was a simple fissure was the east end down to and including the 1000 level. This was the Pilot vein admitted by both parties

to be structurally a true and typical Butte fissure vein. The "other end" which he thought might be classified "*Perhaps*" as a simple fissure was toward the west on the 700 level, and below where the Black Rock fault, and in places segments of the North State and State veins composed the structure. His statement that in the middle "there is the usual transverse structure that is found in veins of the Steward system" is not only unsupported by the evidence, but is nullified by the fact that Burch never saw a Steward age vein, that the only one he claims to have seen was not of that age, and the "literature" or the "authorities" to which he referred at another place (I, 150-1) do not corroborate, but on the contrary discredit his testimony.

We take no issue on the fissure characteristics of the Pilot, the North State, the State or the Black Rock fault. The principal controversies relate to those wide sections especially on the 700 level (there being practically no development on the "Poser" above that level), where transverse structure was relied upon to connect ends which themselves were upon different structures. The vein in this area had all conceivable vagaries. Consistencies of structure it had none. Fissures characteristic of Butte veins it had none, and when appellee was cross-examining one of the Poser's principal protagonists, Mead, he complained that "Mr. Kelly is trying to get me to define an east-west gouge or fissure or something like that which does not exist in this portion of the Poser, except accidentally" (II, 620-1). It could naturally be expected that a vein having such idiosyncrasies as these on the 700 level, where they were absolutely required to prop appellants' whole case, would display them at other

places, but Mead, when asked where they were elsewhere evidenced, pointed only to the Poser tunnel level near the surface and some 600 *feet* above the 700, and it was then quite clearly shown that no such condition existed there (Mead, II, 621-3). The witness tentatively suggested that he saw "some transverse structure" on the 1000 level, but he admitted that this was where the northwest Jessie vein came through (Mead, 654-5). The witness further said that this transverse structure type was "more characteristic of the upper than the lower portions of the Poser vein, more characteristic of the central than the ends above (of) the claim" (Mead II, 562). In other words, as we unhesitatingly assert, appellants' witnesses only find it where their alleged vein was not bolstered up by other fissure structures.

We cannot begin to relate all the curious phrases applied by appellants' witnesses to this portion of their alleged vein. We mention a few. The "Poser vein to me is a particularly interesting one. * * * It has two distinct phases, you might say. The Poser vein is *in part what we call a fissure vein*, and in the rest of its course it is * * * characterized by *obliquely transverse fissures*" (Mead, II, 545-6). This is very clear "*once it is pointed out*" (Mead, II, 556). In one place it is a "stringer of mineralized granite" (Roddewig, I, 413). It is a "stringery lode" or a "stringery zone" (Mead, II, 623, 625). It is a "zone of mineralized granite" (Mead, 577-8). In one *crosscut* the structure is "Poser type structure" (Roddewig, I, 442), which is certainly reasoning in a circle. And when asked how he could discover the Poser vein in a cross-cut, Roddewig said(I, 459):

"By the fact that you have picked up the mineral-

ized granite and passes out of fresh granite into mineralized granite and back out again into fresh granite.

"Q. That is the Poser vein?

"A. That is the Poser vein."

"Mineralized granite" was the favorite term employed to describe the constituent of the Poser vein in the areas where it was not of fissure type, but it was noticeable that when real fissure structure was reached (on other veins or the fault) the term was rarely used. Almost invariably their "mineralized granite" would be found along the walls of older veins or seams which the Poser vein crossed as in 1357 crosscut in workings 13006 and 13021 (post, pp. 189-190), or came into the Poser vein and were cut by the Black Rock fault, or where the Black Rock fault was coincident with the claimed vein. It is conceded by all that the Butte District is essentially a fissure vein district. "Butte is primarily a fissure vein camp, and you must have the fissure first" (Wiley, IV, 1696). All agree that the deposition of minerals resulted from hot solutions rising from the depths through these fissures which were created from time to time. It is elementary, of course, that before mineralized granite or granite altered by these hot solutions, would naturally be expected, a fissure in the immediate vicinity of the mineralized granite would be found. Appellants' witnesses testified that these mineralizing solutions were continuous through the three periods of mineralization, so that the fissures of east-west veins were first mineralized, later the northwest and later the Steward (Mead, II, 533; Lawson, II, 834-5). If this be true, the solutions had a longer opportunity to circulate through and mineral-

ize the fissures and the adjacent crevices in the earlier veins than in the latter. The substantial dislocation of east-west veins by northwest indicates that there must have been a considerable shattering of the older formations, producing a comminuted or crackled condition along both of these older fissures. But according to appellants there was practically no faulting of earlier veins by the "Poser", the movement was slight (Mead, II, 559, 628). This in contradiction to Sales who testified that in Steward-age veins known to him, the throw varies from 50 to 150 feet (Sales, III, 1088-9). Notwithstanding all this, and apparently as another prop to the "mineralized granite" Poser vein, appellants' witnesses claimed that there was more alteration and consequent mineralization in and along the Poser than in or along the two earlier systems (Mead, II, 645-6; Lawson, II, 889, 892-4). On the other hand, Sales, who was the only witness with any actual knowledge of Steward-age veins, stated in both his scientific papers and his testimony, that there was more alteration along the east-west and northwest veins than along the Steward-age veins (Sales, II, 963-5; III, 1265-6), and this opinion is sustained by all logical processes and the opposite could only have been brought forward out of dire necessity. In discussing the several levels, especially from 500 to 1300, we shall show to what extremes this has been carried in an arbitrary bodily lifting of Emily vein structure and its "mineralized granite" into the "Poser" vein.

Mead produced a sketch (Ex. 44)

"of my construction of the Poser vein, showing the two phases. Here is a fissure type followed by a gouge and blending of material mineralization, and

at this end also. In the middle portion of this diagram I pictured what I considered to be a very characteristic type of structure and mineralization of the Poser vein. (Here he described his 'shearing movement'). * * * *At any point along this vein you cannot take a strike and dip, because obviously the structures are not parallel to the vein, but take it in a large way, it has very obviously a lateral feature along it.*" (II, 546-7).

The witness then followed with a long dissertation not on what he had recognized in Butte investigations, but on experiments at the University of Wisconsin:

Then came Lawson, who said in part (II, 848):

"The vein has varying phases or varying aspects as one encounters it in excavations in the mine. In some places we find the vein contained within gouge walls. In other places we find the vein bounded by one wall only and grading off into the country rock on the other side—no hard and fast boundary on one side. In other places we have no very definite walls of any kind of a structural character; that is to say, if the vein is bounded by irregular demarkations on the surface between vein and country rock, quite irregular, but nevertheless very definite when you see them, the contrast between the vein matter and the country rock is very glaring."

He then proceeded to expand upon the shear zone idea, and continued (II, 851):

"We have a process which is truly a vein-forming process by the agencies that veins are made by, and it extended so far from the crevices and the cracks and the openings which became little gash-veins, extended only a limited distance from those, gave rise to a well-defined zone in general, and it is that aggregate of oblique stringers and mineralized granite in that sense that we have as a vein in parts of its course."

From his limited knowledge of Butte geology, the witness must have realized that he was importing conditions never previously recognized here, for he said (II, 851):

"In other parts, as I have stated, it is more like the conventional idea of a vein, but the conventional idea of a vein must not rule out other less conventional types of veins. They are just as truly veins, if they have not got walls, if we know that they were formed by the vein-making process, by the vein-making agencies, just as they were formed, just as if they were between walls."

So that is the "Poser" type, "unconventional" to Butte, also as "unconventional" to any Steward-age vein ever described by Sales either in theoretical or applied geology, as black is to white! Sales says that the Steward-age vein is persistent on strike and dip, has well defined walls, is marked by strong gouges, is readily recognized, and that any transverse structure is within the walls (Sales, II, 963; III, 1088, 1187-91, 1201-4). The *Poser* type of Steward-age veins as described by appellants' witnesses is a conglomerate. East of the Emily and down to the 1,000 level, it is a "conventional" vein, strong in structure, with well defined walls. West of the Emily, and everywhere above the 1,000 level, it is "unconventional," marked perhaps in some places by walls, in other places by one wall, in other places by no walls, northwest structure, with no well defined boundaries, just ragged "edges," and in this section with no gouges or fissure structure along the strike except that supplied by the post mineral Black Rock fault.

It is utterly impossible to contend that such a "vein" conforms to any description ever made by Sales. But

it does conform quite closely (when the geology of the area as shown by the evidence is kept in mind) with the same court's description of *what is not a vein* in the *Elm Orlu* case (affirmed by this Court) as found at page 62 of this brief.

We may well conclude this branch of the discussion by quoting the following from Lawson (II, 890):

“Why I think that it is entirely possible that pre-existing veins *might have been incorporated into the body of the Poser vein, as the Poser vein was forming.*”

Feeling strongly respecting the methods pursued to take away appellee's ore bodies, developed in some fifteen or twenty years of operation, we believe this Poser vein *was formed* since 1923 when litigation work commenced, and pre-existing veins have, *in that formation*, been *incorporated in it*, but by *appellants* and not by *nature*.

2. Appellee's Contentions.

The preceding discussion quite clearly forecasts what appellee's contention with respect to the Poser vein has been from the beginning. Appellants have made an effort to have it appear that appellee contends that the alleged Poser vein west of the Emily consists solely of the Black Rock fault. This is untrue. It is true that the only continuous structure and fissure followed is that fault, and with it is found a considerable amount of drag minerals from veins intercepted and cut when it faulted the country for 150 to 200 feet. As Sales testified, and it is not contradicted, but supports a well recognized geological principle (III, 1148):

“Q. According to your observations, Mr. Sales,

how far out do these quartz and manganese stringers extend from the Black Rock fault where it is away from veins?

"A. I have not seen any that extended away from the fault. In fact, it is difficult to tell whether they belong to the fault. Usually there is more or less drag mineralization of quartz and manganese in this country, where the Black Rock fault passes through, it is so much mineralized with stringers, it is a very common occurrence to have a lot of mineralization along the Black Rock fault from the ends of intersected veins."

Wiley says (IV, 1690):

"The movement upon this Black Rock fault has been considerable, and there are numerous sections of the veins, and this mineralization is largely due, not to the drag alone, but to the faulted sections, the faulted blocks of the veins."

There are places at which appellants place their Poser vein where the fault is not present. Here, either to construct their "transverse structure" or to follow for short distances, appellants use segments of northwest and east-west veins, seams, and altered or mineralized granite associated with them. At other places, where the fault is found, there are also intersected segments of other veins, both east-west and northwest, which appellants utilize for their alleged Poser vein mineralization.

In our trial brief we stated our position, briefly, in the following language which we have no occasion to change in any respect:

(1) On the surface the apex of the alleged vein in the trenches and cuts *west* of 17-B raise is the apex of the Black Rock fault. *East* of that raise and west of the Emily the fault is not in the trenches or cuts claimed by plaintiffs, it having struck easterly or northeasterly

from 17-B raise, and there is no east-west structure within such trenches or cuts; *east* of the Emily the claimed apex is on the Pilot.

(2) On the tunnel levels the claimed Poser vein east of the Emily is the Pilot; west of the Emily, the only exposures of the alleged Poser vein are on nothing but northwest or uncorrelated structures, except that the foot of 17-B raise is on the Black Rock fault.

(3) On the 167 level plaintiffs now claim no exposures west of the Emily.

(4) On the 500 level, except for the Pilot east of the Emily, the very limited alleged exposures are in short workings adjacent to the Emily and on the Jessie. The exposure, at the west end, on the course of the west end line raises, is on the Black Rock fault.

(5) On the 700 level, omitting the Pilot east of the Emily, the Poser vein, consisting for some distance solely of "transverse structure," is composed of crosscutted segments of the Emily and other east-west or northwest seams lying west of it, and thence for a considerable distance west the North State vein is followed. The Black Rock fault also comes into the Poser vein near the middle of the claim and is adopted as a part of the alleged vein throughout the westerly portion of the claim. In this area the "Poser" is also aided by the Jessie, a northwest vein.

(6) On the 1,000 level, excluding the Pilot east of the Emily, the Poser vein follows throughout the course of the Black Rock fault, but also relies, for its "transverse structure," upon segments of the Emily and other northwest or east-west seams or veins, including especially the North State and the Jessie.

(7) Plaintiffs come down from the 1,000 to the 1,300 levels across the south side line of the Poser claim solely on the Black Rock fault, except as there may be faulted segments of veins or seams in the west end line raise. On the 1,300 level the Poser vein follows the Black Rock fault from the foot of the 1376-A raise throughout to the west end line. East of 1376-A raise the fault strikes northeasterly throughout 1378 drift, is abandoned by plaintiffs and the Poser vein is projected easterly through 1357 crosscut, where it crosses the Emily vein in workings 13021 and 1388. It is admitted that it does not fracture the Emily vein at these points. (Exhibit 16).

(8) Respecting the west end line raises, the only continuous structure within them from the surface to defendant's stopes is the Black Rock fault, but there are in many places faulted segments of other veins or seams, including the North State and State veins and other seams common to the country, some of which segments lie for considerable distance along the course of the fault.

(9) The east end line raises, which (except those abandoned as above stated, ante, pp. 95-100) do not extend below the 1,000 level, are on the Pilot vein, which has been the subject of separate discussion (ante, pp. 78-86).

Wiley summarized the whole subject quite well and succinctly when, in describing conditions on the 700 level, he said (IV, 1696):

"In other words, this level illustrates the methods used in following the Poser vein. At the eastern end in the upper levels upon the Pilot for a space arbitrarily right across the structure of the Emily vein, further west along the Black Rock, and then along the previously, older, veins, and then again to the Black Rock, they jump from one feature to

another in order to get anything which extends the length of the Poser claim, or which extends from the upper workings down to the deep.”

3. The Court's Findings.

This court will, of course, read the entire opinion of the district court as found in Volume V at pages 2232-2252 of the record. It would serve no useful purpose to repeat it here. Suffice it to say that the court found that the Poser vein did not cut or pass through the Emily and had no existence west of that vein. When it found this, the entire Poser vein attack was defeated because *east* of the Emily, the vein which we say is the Pilot (appropriated as the Poser) is of vertical dip lying under the Poser surface and no extralateral rights were involved thereon. The court adopted practically in their entirety the contentions of appellee. Many of its findings have been or will be quoted by us at the appropriate places in this brief. We are endeavoring by this brief to present the facts upon which the trial court passed in order that this court—if it reviews those facts at all, may appreciate the keen analysis and comprehension exhibited in the lower court's opinion. This cannot be done by following the cursory and fragmentary statement of facts in appellants' brief, which with respect to the “Poser” vein indicates that they have abandoned structural facts and rely solely on assays, later discussed herein, with respect to which they have, as we shall show, achieved no greater success.

4. Geology of the Workings to and Including 1300 Level.

While we do not believe this court will undertake the laborious task of analyzing the complicated geology of

the case, nevertheless if the facts found by the trial court are to be reviewed, a consideration in detail of the structures in the workings from the Poser claim surface to and including the 1300 level (the first extralateral level) cannot be escaped. For this reason we present the facts here, as a duty to the court no less than to client, though it lengthens a brief we should prefer to abbreviate if that were possible.

The following discussion cannot be understood without reference to the several diagrams (appendix) referred to as we proceed, but with their aid we believe our position will be made quite clear.

THE SURFACE AND THE POSER APEX.

Before appellants' witnesses reached the surface in their description of the Poser vein (and this invariably represented their last effort), they testified to claimed facts strongly indicative of the theory that such a vein would not appear at the surface. Burch said that according to the technical and geological "literature" of Butte (presumably the scientist but not the witness Sales), Steward age veins generally "do not come within a thousand or twelve hundred feet of the surface" (I, 213). Roddewig said (though we admit he had no knowledge upon which to testify) that "it is the habit of those (Steward) veins in this camp not to come to the surface" (I, 374). Lawson said that the Poser is a "feeble vein towards the surface" (II, 848). Burch testified on direct examination that between co-ordinate lines 1800 west to 2100 or 2200 west (a distance of 300 or 400 feet), the 500 level was "the highest level on which we are sure we have the Poser vein. Some-

where between that level and the next one above, which is 300 feet up, it is undoubted that in that section the mineralization did not continue up," and that the 500 was the highest level where "we" know "we" have the vein between those points (I, 199). But presently he modified this by saying that he had excluded too much territory as on the 167 level the Poser vein was "well developed" between the 1900 and 2000 co-ordinates (I, 200). Apparently he had forgotten that the amended bill of particulars placed the vein in 167.

But notwithstanding this, appellants' witnesses boldly and recklessly set out to do what they had apparently said would be impossible in the case of the Steward age vein. They testified to a claimed well defined, though most peculiar and broken, apex, which included some of the area where Burch had said the vein had disappeared below.

Before describing that apex, a radical shifting of position had occurred respecting its location, according to the original and amended bills of particulars heretofore mentioned (ante, p. 41). According to Burch, appellants started development of the Poser apex in the summer of 1925, although previously they had apparently made some attempts in this direction. They ceased development "yesterday" according to his testimony on October 15, 1926 (Burch, I, 235), but this was resumed *after the trial* began and was furiously continued *practically until* its conclusion (Lawson, IV, 1865).

The surface location of the "Poser" vein by the bills of particulars is shown by the second sheet of Exhibit 137, and the tunnel levels by the sheets following, and for convenience copies are inserted in the appendix as Diagrams H, and I.

At the west end of the claim the original bill placed the apex in several of the apex trenches where appellants claimed at the trial it is located, with Branch A at the top of 17-A raise and Branch B at the top of 17-B raise (I, 44). While the amended bill continued the vein in 17-A raise, appellants' maps and models practically disclaimed this, though Burch continued to think that an "upward branch" of the "Poser" could be *considered* as in that raise (I, 244). The amended bill placed the apex in cuts 12, 13 and 14, being at the easterly end of the western series of cuts (I, 90), though these were in existence when the original bill was filed. Evidently the hydrothermally altered granite claimed to be in them (Lawson, II, 856) had not become visible at that time.

The bill of particulars' location of the apex in the easterly end of the Poser claim, the course of this apex as changed by the amended bill served only two weeks before trial, and the specifications of the vein in tunnel No. 1, present glaring proof of a complete reversal of position, not only as to the course of the alleged apex at the surface, but as to the character of that apex, between the filing of the original bill in January, 1926, three or four years after appellants began to develop their theories, and October 2, 1926.

We shall point out presently that there was a further and complete "mending of hold" by appellants during the two weeks intervening between the service of the amended bill and the commencement of trial.

At the southeast corner of the claim, appellants originally placed their apex in the top of 310-A raise and in cuts 2, 4, 5 and 21 (I, 44), extending westerly from 310-A raise practically along the south side of the Poser

claim, a distance of nearly 300 feet, and so close to that south line that appellants were compelled to exclude 52 feet of the apex of their claim by their bill of complaint (*ante*, p. 41). The Pilot vein and its strike were clearly disclosed in 310-A raise, and in the small lessees' stope between crosscut 21 and 6-A raise, described by Burch in his testimony as being on the "Poser" (I, 237), and unless appellants were then purposely avoiding the apex of the Pilot vein (knowing from underground developments and its *northerly* dip, that it was not a Steward-age vein, that it would not lead them to the coveted ore bodies and that its apex would not connect with the apex claimed to be in the trenches and cuts at the west end), they would not have placed their apex in the south side line cuts in which there was no trace of the Pilot. It is clearly apparent that they were trying to avoid the Pilot apex and endeavoring to follow something in alignment with the western cuts and trenches which had a course somewhat south of east, and so urgent was this that they were willing to follow some slight stringers or slips in the southerly cuts even to the sacrifice of 52 feet of alleged apex. At that very time the Pilot vein was clearly exposed in the small stope above mentioned and in the railroad cut by the Elm Orlu engine house (Roddewig, I, 405), clear apart from the series of cuts in which appellants placed their Poser apex, but they purposely shut their eyes to this disagreeable feature, and pursued another course. When asked to explain this, Roddewig declared that "*it was probably the mode of attack that was applied to the problem in hand* (I, 405—see Court's Opinion, V, 2242).

"Q. Who outlined the mode of attack?

"A. The man directing the development work.

"Q. Was that Mr. Burch?

"A. Yes, sir.

"Q. Mr. Burch. Now then, when did he change his mode and attack this vein which we call the Pilot vein?

"A. Some time during the course of the development.

"Q. Yes, sir, that was after the first bill of particulars was filed and after this lawsuit was filed, was it not?

"A. I think probably it was." (Roddewig, cross-ex. I, 405.)

After describing the alleged exposures of the Poser vein on the surface and through the raises and cuts above mentioned, the original bill said with respect to the apex (I, 44):

"Its course upon the surface is generally easterly and westerly varying from slightly north of east to slightly south of east."

In brief, the apex as then laid was to be an unbroken line along the southerly line of the claim on the east and thence extending right through the Emily vein to a connection with the trenches on the western portion. No split apex was then in the minds of Burch and his collaborators. That was a natural phenomenon to be hated, until it had to be endured, then pitied, then embraced.

Referring now to tunnel No. 1 workings immediately under the southeasterly cuts above discussed, the original bill placed the Poser vein therein from the top of 3-A raise to the foot of 1-A raise (I, 44) close to the Poser south side line (Diagram I).

Now comes the change of heart and a reversion to

the outstanding structure from the first, the Pilot vein. After the first bill of particulars was filed, appellants drove a number of crosscuts from tunnel No. 1 northerly to encounter the well-known Pilot vein. That vein was reached and it, or one of its branches, was followed westerly in No. 6 working to the easterly side of the Emily, and the amended bill then abandoned the cuts and main tunnel No. 1 along the south side line of the Poser claim, and the vein was placed in No. 6 working on tunnel No. 1 and, on the surface in 4-A and 6-A raises from drift No. 6 (I, 90). So appellants finally returned to the Pilot apex, with all the troubles they knew that vein possessed below, but there was slight compensatory balm as this enabled them to restore to the Poser claim the 52 feet of apex originally excluded in avoidance of the Pilot vein, which they did by amendment made on the day trial began (I, 123-4).

The fifth bill of particulars map in Ex. 137 is of the Poser 167 level, somewhat below the tunnel levels. A copy is found on Diagram J. The original bill did not locate the Poser vein on this level, *although drift 6 east had previously* been run. Thereafter appellants drove 6-A raise from this drift, and also ran drift 6 west. By the amended bill, they placed their vein in 6 drift east, which existed when the original bill was filed, and in 6 drift in its "westerly part" and throughout 6-A and 6-B raises (I, 90). By an explanatory letter (dated October 7, 1926), attached to this amended bill, appellants stated that the reference to the "westerly part" of 6 drift meant the drift at the bottom of 6-B raise (I, 99).

Now by reference to Diagram J it will be manifest

that *as late as one week before trial*, appellants were proposing to paint their apex *right through the Emily vein* on this level, for 6-B raise is west of the Emily and on the line of 6 east drift. The happy thought of a torn apex had either not occurred to Burch, or he feared, very naturally, that this would be very disturbing to appellants' theory that the "Poser" vein cuts right through the Emily in levels below. But something happened between October 2 and October 15. 6-B raise, which the amended bill stated followed the Poser, got into trouble. It was hoped to find something in it which might connect with No. 20 drift in the Poser tunnel level where appellants' original bill had placed the westerly segment of the Poser vein. Instead it went up on a *northwest* vein, and holed into the Poser tunnel level in a crosscut some 25 or 30 feet north of drift 20 (Roddewig, I, 412-3). Most eager and willing expert eyes could not justify the expenditure of red paint through this territory. So 6-B raise was abandoned practically on the eve of trial, and the "split apex" theory first saw the light of day. *The "Poser" vein does not cross or cut the Emily on the surface.* We shall demonstrate later that it does not do so in the levels below, and that it exists neither on the surface nor below.

Appellants have claimed that the westerly end of 6 drift west and 6-B raise may be on a branch of the Poser. But the more they try to avoid the record, the more impossible their situation becomes. Does one branch of the Poser cross the Emily and another not do so? How can the northwest or Blue vein in 6-B raise, identified as such by Roddewig, be converted into a Steward-age vein?

They contended that their broken apex idea had been in process of formation for some time. Then why did they advise appellee by the amended bill on October 2 and by their letter of October 7, that their vein was found at the end of 6 drift west and in 6-B raise, *west of the Emily?*

Coming now to the testimony respecting the existence of the "Poser" apex, our Diagram A shows the geology according to the surface maps of both parties (Exs. 5 and 92), appellee's being at the top.

As already stated that portion of the "Poser" apex east of the Emily is on the Pilot vein, and its existence is not disputed. This vein contains gouge, quartz and manganese, and when exposed upon the surface blackens and shows a condition similar to the outcrop of the Badger, State, North State, Jessie, 352 and other older veins in the neighborhood (Bateman, III, 1284-5; Barker, III, 1463-5; Steele, IV, 1579; Wiley, 1732-9). The Pilot vein as disclosed at the surface and down to and including the 1000 level is a typical vein but it stops east of the Emily in tunnel No. 1. As appellants' litigation manager Burch said (I, 201):

"It is a fact that this particular branch of the Poser appears to terminate against the Emily vein. It is also a fact that there is no appearance of there having been a displacement along that vein or of there ever having been any corresponding fissure existing on the opposite side. No reasonable amount of displacement meets any vein which may be correlated with it in any way whatever. Therefore, in my opinion, this particular branch terminated absolutely against the Emily vein at that point."

This "particular branch"—the only "Poser" vein claimed by appellants on the surface east of the Emily,

at the time, was that portion extending "continuously from the 6-A raise westward to the 23 crosscut" on tunnel No. 1 level (I, 200), and it was the same "particular branch" which practically to the day of trial appellants were proposing to locate *west* of the Emily in the west end of drift 6 and in 6-B raise on the 167 level.

But notwithstanding that Burch admitted that the Poser vein east of the Emily terminated against it and that there was no evidence of "any corresponding fissure existing on the opposite (west) side," appellants were not deterred from proceeding to locate the Poser vein *west* of the Emily, in a series of trenches beginning with No. 6 just west of the west end line of the Poser claim, an adjoining north-south cross-trench, a longitudinal trench running to the top of 17-B raise and a series of trenches running easterly from 17-B raise to trench 14, some distance west of the Emily lode. An examination of appellants' surface map (Diagram A) will indicate the wide divergence (marking the split apex) of the course of these trenches from the projected line of the alleged apex *east* of the Emily.

It is impossible within reasonable limits to relate, in detail, the testimony of witnesses for the respective parties respecting what appears in these trenches. There is a sharp conflict between the witnesses for the two sides on this subject, those for appellants asserting that the apex of the "Poser" vein is shown in all of them, those for appellee uniting in saying that there is not the slightest evidence of a structure running east and west through any of them, except the Black Rock fault *west* of 17-B raise. The trial judge viewed these surface workings (V, 2244), and as he says that his "view of

the premises tends to sustain defendant's experts in conflicts between them and the experts of plaintiffs, save in some comparatively unimportant instances" (V, 2245), and as the Court found that the Poser vein did not exist west of the Emily, it necessarily follows that he found that no outcrop of a vein existed in these westerly surface workings—at least not of the "Poser" vein. Not only the testimony but appellants' peculiar inconsistencies and reversals of position already related and those to be stated respecting lower workings, unquestionably sustain the Court's findings and appellee's witnesses.

We summarize briefly the contentions of the witnesses for the respective parties.

Appellants' witnesses contended that throughout this series of west end trenches, there appeared what their witnesses testified to be "hydrothermally altered granite," or "whitened altered granite," with some quantities of quartz or stains of limonite and that it marked the course of a vein having a general east-west course which they said was the "Poser" vein (Burch, I, 203-5, 1956-8; Roddewig, I, 361-4, 375-403, II, 508-515, V, 2037-43, 2103-20, 2145-6; Mead, II, 589-90, 596-603, 607, 613, V, 2004-7; Simkins, II, 731-3, 754-9, 785-6, V, 1919-21, 1944-7; Lawson, II, 856, 913-4, IV, 1865-71, 1889-1904).

Appellee's witnesses testified that in *that portion of this line of trenches from the west end line to and including the top of 17-B raise*, there was nothing but a yellowish white decomposed granite with no quartz formations or any quartz whatever except in minute and fragmentary amounts, the decomposition of the granite being due to surface waters, that the Black Rock fault

was cut by the north-south trenches at the west end south of the longitudinal trench and was found in the easterly end of the longitudinal trench and in 17-B raise, from which point it apparently departed to the north of east; and *that the trenches east of 17-B raise* in which the Poser vein was claimed to be, disclosed no mineralization except a few isolated seams having a northwest course, crossing the trenches, and that throughout the *entire line of trenches* there was no evidence whatever of any structure having an east-west direction, as claimed by appellants, except the Black Rock fault *west* of 17-B raise. (Sales, II, 980-990, III, 1270, V, 2157-67, 2183; Bateman, III, 1280-4, V, 2188-91; Barker, III, 1386-95, 1450-65, V, 2201-6; Steele, IV, 1555-6, 1604-9, V, 2213-6; Wiley, IV, 1681-6, 1728-49.)

Sales, who was thoroughly familiar with the country, testified that if trenches were dug anywhere in this area, they would disclose the same condition as in the trenches on the claimed vein (Sales, II, 988).

Burch says that the vein is six or seven feet wide in trench or cut 6 at the west end line and

“There it is whitened altered granite, very similar to the outcrops of most of the veins in the district, and certainly of most of the veins of the Steward system and is followed by a trench running down to the top of 17-B raise which is upon the vein” (I, 204).

This is simply untrue. The witnesses of practical experience with Butte outcrops testify that this “whitened altered granite” does not compare with the outcrops of other veins in the neighborhood which are of quartz and manganese blackened by exposure (Sales, II, 989; Barker, III, 1459-60, 1463-4; Steele, IV, 1579; Wiley,

IV, 1732-9). And Burch's statement respecting outcrops of "veins of the Steward system" is based on no testimony that he ever saw another such outcrop and, as already shown, he never saw a Steward-age vein. This statement is characteristic of many wild statements of appellants' witnesses respecting both surface and underground workings.

While we cannot go into details respecting the testimony, one or two incidents demand special notice. Appellants' witnesses testified that the "walls" of this Poser apex could be distinguished from adjoining formations by the hydrothermally altered or mineralized granite gradually fading into fresh weathered granite. On October 18, after examining the trenches on the previous day Roddewig brought in samples of mineralized granite and of fresh granite (Ex. 41, Nos. 1-5). He said these showed the difference between the mineralized granite in and along the longitudinal trench at its intersection with trench 6 at the extreme west, and the fading into fresh granite to the north and south thereof (II, 510-512). He said that one specimen was from No. 6 cross-trench opposite the end of the longitudinal trench and it "shows mineralized granite with vein quartz and staining of limonite," that the next specimen was from No. 6 cross-trench one foot south of the south side of the longitudinal trench, showing "mineralized granite with considerable quartz." He proceeded (II, 511):

"The next specimen is from a point 2 feet south of the south side of the longitudinal trench in No. 6 cross-trench. It shows mineralized granite with considerable quartz cementing the specimen together.

"Q. What is the next exposure south of that?

"A. The next exposure south of that is *weathered granite*.

"Q. Weathered; what kind of granite, fresh or altered?

"A. *Weathered, fresh granite.*"

Nine days later he placed the south wall of the vein 14 or 16 feet south of the longitudinal trench, about 10 to 14 feet south of where he originally located it, and he testified (V, 2104):

"Q. Is there any fresh weathered granite in between where you now place your south wall of the vein and the longitudinal trench?

"A. *I have not been able to find any.*"

The conclusion is this: On October 18, Roddewig brought into court an imposing array of samples to demonstrate that *then* the south wall of the Poser vein was *just south* of the longitudinal trench, distinguished by the fact that mineralized granite there faded into weathered fresh granite. On October 27 he discredits his previous testimony and his samples by saying that he was unable to find *any fresh weathered granite within 14 to 16 feet south of the longitudinal trench!* It will not do to say, as appellants attempted, that No. 6 trench had been cleaned out meanwhile. The situation when Roddewig examined it on October 17 was sufficiently clear to enable him to see *weathered, fresh granite* just south of the longitudinal trench. If some 10 to 14 feet of weathered, fresh granite can be converted into mineralized granite by the short exposure of ten days or by cleaning out or deepening a trench, this case reveals even greater kaleidoscopic phenomena than it previously possessed. Such evidence, if it does not stultify, certainly

discredits appellants' efforts to mark their vein on the surface and in its transverse, criss-cross sections below, by the ragged edges between "mineralized granite" and fresh, unaltered granite.

Appellants' final views respecting conditions of altered granite in these trenches west of 17-B raise strongly confirm appellee's testimony as to the position and strike of the Black Rock fault in this area. (See our Diagram N.) Roddewig says that on the southern side of the trench just east of 17-B raise there is fresh granite and on the northern side and in the trench to the north is mineralized granite with iron stained quartz (V, 2040-1). Therefore, north of 17-B raise in the trench just east of it, there is mineralized granite, according to Roddewig, similar to the conditions described by him in the west end of the longitudinal trench. In other words, the whitened, soft, crushed granite, according to appellants' own testimony, strikes northeasterly from 16 feet south of the longitudinal trench to near the south side of 17-B raise, and appears north of 17-B raise in the trench to the east.

Notwithstanding appellants placed their Poser vein outcrop in the trenches west of 17-B raise, they recognized no east-west quartz seams or fissures of any kind, only some streaks of limonite (Roddewig, I, 378, 386-7; Mead, 609-610). While to Mead the "Poser" vein underground about 700 to 1000 feet was "a particularly interesting one" (II, 545), when he got into cross-examination on the longitudinal trench he was not "interested" in its structure, he simply *knew* the vein went through, apparently by intuition.

"A. I think there is a longitudinal structure in there.

"Q. Can you point it out in your notes?

"A. *It does not interest me in the least; I know the vein goes that way.*" (II, 612.)

One word in concluding this subject. In that segment of the Poser claim between the west end line and the top of 11-A raise, a distance of about 290 feet, being the section covered by the greatest part of the west end "apex trenches," appellants claimed no exposures in longitudinal workings on the "Poser" vein underground until the 700 level was reached. True, they claimed it downward along the west end line raises (which appellee says and the Court finds, are on the Black Rock fault), and they claimed it in a very short working of a few feet on the 500 level. But looking at the matter in a practical way this 290 by 500 feet block of ground was entirely undeveloped so far as the "Poser vein" is concerned. More than credulity is required to believe witnesses who, with this *terra incognita* confronting them, testified to the location of the "Poser" apex in this westerly section. Is the mere *ipse dixit* "I know the vein is there," sufficient to establish extralateral rights, in the face of the facts in this case?

TUNNEL LEVELS.

These tunnel levels are shown on Diagram B, appendix, and express the geology of the respective parties, taken from appellants' exhibits 6, 7 and 8, and appellee's exhibit 93. The Poser tunnel at the west is about 60 feet higher than tunnel No. 1. Tunnel No. 2 is about the same elevation as the Poser tunnel, but

does not expose the claimed Poser vein and will be disregarded.

A casual observation of these exhibits will indicate appellants' tribulations near the surface, and casts discredit on their apex testimony, *supra*.

In these three tunnel levels not exceeding anywhere a depth of 175 feet, appellants did 3,784 feet of litigation work of which 575 feet are claimed to be on the Poser vein. We have made the measurements from appellants' exhibits. Of these 575 feet, 425 feet are on the vein (Pilot) east of the Emily, and 150 feet upon the "Poser" west of the Emily, which includes the entire linear exposure of the Poser vein west of the Emily, and all thereof being over 300 feet east of the west end line. The total litigation work on these levels is more than sufficient to extend three drifts on the Poser vein, if it existed from end line to end line, and yet presumably to save expense appellants did not follow the "Poser" vein throughout any level of the mine from end line to end line, excepting on the 700 level (Burch, I, 147). We shall have more to say of extensive but utterly useless and inconsistent litigation work as we proceed from level to level.

Appellants' experts testified to an obvious outcrop of the vein on the surface, and yet less than 200 feet underground they prosecuted 2355 feet of litigation work west of the Emily and claim to have followed it for 150 feet, and not at all in the westerly 300 feet of the claim.

Appellants correlate the Poser vein from the foot of 17-B raise to the foot of 11-A raise, at the west end, a distance of 230 feet, without a single foot of drifting. Drift 16 starts south of 11-A raise and south of the

vein, and is not claimed to be on the vein until it reaches station 3102 (Bill of Particulars, I, 44, D. Ex. 137, map 2), a distance of 110 feet east of the foot of 11-A raise, so that with more than 2300 feet of litigation work in this Poser tunnel, they correlate that vein on strike from the west end of drift 16 about 300 feet to 17-B raise without a foot of drift upon the vein. The "Poser" is indeed readily followed by "an inexperienced person," even through undeveloped country "once it is pointed out!" (Mead, II, 556.)

The fissure in 16 drift encounters the south branch of the Emily in the east end of the drift (Barker, III, 1403-4). What do appellants say? Burch is not clear as to what happens to this vein when it encounters the northwest vein in drift 16, but in the east end of drift 20 there is about a foot of poorly mineralized granite and a northwest gouge "common in the Poser vein" (I, 251-2). Nothing in this drift has an east-west strike (Burch, I, 254). The "Poser" vein "through there is stringery, characterized by northwest fractures and structure in general with mineralized granite. It is a zone banded by fresh granite to the north and south, and is not of the fissure vein type" (Mead, II, 586). Appellants had a small fissure vein at the foot of 11-A raise (Sales, II, 998). Instead of drifting on this vein, they drove working 16 to the south of the vein in 11-A raise, and easterly at station 3102 they say this drift, in common with drift 20, is on a vein of northwest structure with mineralized granite, not a fissure type. As already stated this is one of the places in the mine where, longitudinal structures of other veins or the fault failing, Mead puts forth his transverse structure

theory. But a correlation of this area with the transverse "Poser" vein portion of the 700, will show that they do not occupy the same segment of ground. The "transverse structure" in the Poser tunnel level is west of the same character of structure on the 700, and is over the fissure vein portion of the Poser on that level. Perhaps Mead could conceive of another stress which produced this additional distortion. Again, it will be observed that the northwest structure in the Poser tunnel appropriated for the Poser vein is right along the foot-wall branch of the Emily vein.

Practically underneath drift 20 in the Poser tunnel, in drift 8 of tunnel No. 1 (P. Ex. 7, Diagram B), appellants show a northwest striking structure running from crosscut 13. Evidently for the purpose of connecting drift 8 of tunnel No. 1 with drift 20 of the Poser tunnel above, appellants drove 8-A raise from drift 8. But this was a "mistake. I got off on the wrong thing there" (Burch, I, 252). However, if this little seam in drift 8 had connected with drift 20, it would doubtless not have been a mistake, and the Poser vein would now be located throughout drift 8 on the tunnel No. 1 level and perhaps connected with the south branch of that tunnel, along an entirely different course than now painted. But this was not the only mistake. As explained in describing the total shifting of position of the vein in 167 level, and the final discarding of 6-B raise, coming up from that level to the Poser tunnel (*ante*, pp. 119-125), appellants again tried to make a connection with drift 20, but 6-B raise came up on a *north-west* vein and holed into the Poser tunnel workings some 25 or 30 feet from drift 20. This abandoned raise 6-B

appears on the tunnel level maps (Diagram B). Two efforts on different lines terminated in grief and admitted mistakes in this neighborhood.

If appellants were confident of their position there was one obvious piece of work to be done on this Poser tunnel level. Their bill of particulars (I, 44) and their testimony placed their vein at the top of 11-A raise and at the foot of that raise (I, 44). They also placed their vein at the foot of 17-B raise, about 300 feet to the west, and they have *projected* their vein right across the Poser tunnel level between these raises. *If* they had constructed a working between these two points, underneath where they located the "Poser" apex, and *if* that working had drifted on a vein, they might have had some basis for argument. They did not do this, but contented themselves in wandering around east of 11-A raise, throwing money away on useless and subsequently discarded drifts, crosscuts, etc., etc. Why did they not do it? There can be but one conclusion. Appellants were confident that they could not follow the small vein disclosed in 11-A raise for any distance, inasmuch as in the network of workings to the east of 11-A, it was not followed or found and only 150 feet of "Poser" vein could there be "formed" consisting of northwest transverse structure utterly unrelated to the little vein in 11-A raise.

Appellee's witnesses all testify that nowhere in these Poser tunnel workings is there any structure such as appellants describe as their Poser vein, and that the only veins found therein are northwest veins, including the Emily, utterly uncorrelated with any east-west structure, but that the Black Rock fault is in 17-B raise.

(Sales, II, 998-1001; Bateman, III, 1287-8; Barker, III, 1400-5; Steele, IV, 1576-8; Wiley, IV, 1688-9). Appellee's witnesses were not cross-examined at all respecting the Poser tunnel workings, and yet they constitute an important portion of the mine litigation workings.

167 AND 300 LEVELS.

Appellants now claim no disclosures of the Poser vein west of the Emily on either of these levels. The subject of the 167 level was considered in connection with the relocation of the Poser apex (*ante*, pp. 119-125). The 300 level is only material respecting 310 and 312 workings on what appellee says is the Pilot vein at the southeast corner of the Poser claim, and has already been fully covered (*ante*, pp. 81-85).

500 LEVEL.

Diagram D shows a section of the workings on this level, taken from the parties' level maps, P. 11 and D. 97, and embracing the only places where the Poser vein is shown to be disclosed. But this diagram does not cover the entire level and we trust the court will use the maps as well as the diagram in following the succeeding presentation.

We are 500 feet underground, with practically no development of the Poser vein above, and naturally it would be expected that appellants would have attempted to develop the Poser vein on strike along the level or for a substantial distance. But they did not, and aside from the workings in 560 drift and associated workings east of the Emily on the Pilot vein, the only places

where they locate their vein on this level are in the short workings 582 and 576 across the two branches of the Emily vein, in 574, 580 and crosscut 579 further west and in 581-A raise at the west end. The broken red lines on appellants' exhibit in Diagram D, here as elsewhere, represent projections only—not development. A calculation of appellants' litigation workings on this level indicates 1631 linear feet and it was admitted that “very little” work has been done on this level to uncover the Poser vein at or west of the Emily, probably *about fifty feet*, this being divided among the several short workings above (Burch, I, 249-250), so that each of the alleged exposures is inconsequential and amounts to little more than a point. We ask the court to note the location of these points of alleged exposure. The most easterly one is No. 582, a crosscut of the north branch of the Emily; next to the west is No. 576, a crosscut of the southerly branch of the Emily, about 90 feet from crosscut 582; the next are 350 *feet* to the west, in the short workings 580, 574 and 579, where the northwest Jessie vein appears shown in blue on appellee's map, in yellow on appellants'; the next at 581-A raise at the west end, claimed by appellee and found by the court to be upon the Black Rock fault.

But if appellants did little work upon their vein, they at least had their witnesses testify that here the “Poser” cut through the Emily. The character of that testimony is another thing and we shall fully justify the trial Court's findings of the utter recklessness and unreliability of the effort. Appellants had finally admitted that the Poser did not cross the Emily on the 167 level, the tunnel levels and the surface and as Wiley

said, while a "man with a vivid imagination" could conceive the reversal below, it was extremely improbable and if it ended east of the Emily above he would expect it to end likewise on the lower levels (IV, 1768-9).

The testimony of appellee's witnesses is clear. It is that there is no evidence whatever of the crossing of the Emily, or either of its branches, by the "Poser" or any other east-west structure at the places named or elsewhere, that both branches of the Emily are strong, quartz manganese veins several feet in width;

(a) that *working* 582 is purely a crosscut of the north branch of the Emily; that the only east-west or northeast feature in it is a little slip of about a half inch or inch of gouge running northeasterly practically crossing 582, offsetting the vein two feet to the left (I, 197), and against which the *characteristic Emily structure immediately abuts*, and which does not coincide with the course of the "Poser" vein;

(b) that *working* 576 is a crosscut of the other strong branch of the Emily, contains no east-west features and *ends in granite*.

(Sales, II, 1007-9, 1239-40; Bateman, 1291-4, 1369; Barker, III, 1407-10; Steele, IV, 1571-4; Wiley, IV, 1694.)

The testimony of these witnesses was so positive, coupled with the admitted presence at both of these workings, of the branches of the Emily vein, shown on both maps, that certain of them were not cross-examined at all, and the others most casually.

We have stated the appellee's case to clear the decks for the remarkable and totally unbelievable testimony of appellants' witnesses, and as an introduction to this

a brief statement of the conduct of litigation work on this level will be highly illuminating.

551 crosscut from the Elm Orlu shaft down to the foot of 570-A raise was prelitigation work and is not included in our calculation of litigation work on this level. It was driven southwesterly and cut the "Poser" vein (which appellee says is the Pilot here) at the present 570-A raise, one of the east end raises on the Pilot. This is an unmistakable vein and if it be the "Poser," 1200 linear feet of drifting on it would have carried the vein to the *west* end line. Not only would about 1600 feet of useless work have been avoided, but the "Poser" vein if it existed west of the Emily would have been followed the entire distance and not for merely 50 feet divided into three widely separated spots.

But this was not done. It was not the "mode of attack applied to the problem at hand," and 551 crosscut was extended to the south boundary of the claim before work to the west started on 560 drift which was driven a short distance several years ago and stopped. It was later continued in a westerly and southwesterly direction as indicated by the meandering lines of the maps until it reached a point near the present 578 working on the Emily *and it then turned south across the Emily vein and the south side line of the Poser and then again stopped* (Steele, IV, 1570-1; Roddewig, I, 421). It was admitted on cross-examination that the admitted vein upon which 560 drift was run westerly *was not found in this extended working west of the Emily* (Roddewig, I, 421). What was in the minds of appellants' litigation managers then is unfathomable. A year or two later appellee drove drifts 578 and 566 on the

two branches of the Emily to develop its character and course, and to demonstrate that the Pilot vein did not cut and cross it (Sales, II, 1247; Steele, IV, 1571-2). That being done, appellants came in and apparently *arbitrarily* selecting the place, shot a few rounds into the Emily at 582 and 576 and formed the so-called "Poser vein crossings" above described.

Now, let us see how these crossings by the unmistakable Poser structure which apparently consists of "mineralized granite and gouge" in this area (Burch, I, 192) are described.

"In the 576 *drift* we find the Poser vein also on both sides of the northwest vein, *but a very light crack crossing the northwest vein, very light indeed, and comparatively poor mineralization in the west face of the 576 drift*" (Burch, I, 197).

* * * * *

"Going further east the next place where we encounter it is in the 582 drift where it crosses what we recognize as the Emily vein. There we have a very distinct fracture passing through the Emily vein with the faulting of the vein, with a displacement about 2 feet in the Emily, and passing outward to the east end of the 582 drift *are gouges with mineralized granite, * * ** dipping slightly to the north" (Burch, I, 197).

And again Burch says that this is a "fracture coincident with the Poser fracture" (I, 238).

Then referring to 564 drift, the first exposure east of 582 about 100 feet, Burch describes the vein as consisting "entirely of mineralized granite whitened and altered" (I, 198).

Roddewig says that the vein appears "in the extent of 576 drift" (where Burch said it was a "very light

crack * * * very light indeed”), and in 582 the Poser “crosses the vein marked in yellow (Emily) and appears to offset it slightly, possibly 6 inches or a foot,” and “you can follow the Poser fractures straight through the intersections and find mineralization on each side and the fractures going through” (I, 358-9); that “near the Emily the vein (Poser) is of small width, and as you proceed eastward in 582 it is wider, several feet wide,” that the only thing you see there is the fracture shearing the Emily right off and moving it about a foot (I, 423-4); and that in the 564, 100 feet east of the Emily, the Poser vein is of “a width of approximately 15 feet of well mineralized granite and sulphide and some appearance of some quartz” (I, 359). (We pause here to ask why in view of this strong fifteen foot vein of mineralized granite, appellants did not drift on it to the Emily crossing 100 feet to the west.)

Mead says that the vein is followed in 576 drift “*as indicated by the workings,*” and follows “582 drift from end to end and passes through in a narrow fissure,” which is a fissure associated with the Poser vein and “offsets the northwest vein *very slightly*” (II, 584).

Simkins testifies that at 582 the vein is “of mineralized granite, much fractured,” that it “is *very wide at the face of 582 drift east,*” and “*wider than the drift in the westerly face of 582*” but that the “only thing that goes through, actually can be traced through, is a wall passing through in an east-westerly direction” and which cuts and displaces the Emily vein though he was unable to see any actual displacement (II, 728).

“Q. About half an inch. So the ore from the Emily, from the southeast, comes up in drift 578

and is just spread half an inch by a gouge, and your Poser vein goes through there?

"A. That is the feature of the Poser vein that goes through the country.

"Q. So the Poser vein that goes through the Emily is half an inch wide at drift 582?

"A. Yes, sir.

"Q. And it is how large a drift in 582?

"A. A large mineralized area.

"Q. This mineralization on both sides of the 582 here could not be attributable to the Emily?

"A. I don't think so.

"Q. You think it is attributable to the half inch vein you see cutting through there?

"A. That is the expression of this vein." (Simkins, II, 778.)

Lawson was not examined in chief by appellants on this situation, but on cross-examination he said that there was "a clear exposure of a portion of the Poser vein going through the Emily with a slight displacement," that the portion of the Poser vein going through the Emily with a northeast strike was a gouge less than an inch thick (II, 886):

"Q. So that your Poser vein passes through the Emily structure on that 500, the actual vein is an inch wide or less than an inch?

"A. Well, within the Emily vein you may say that that gouge is less than an inch in thickness, but that is another case where the Emily vein was in existence before the development of the Poser. The Poser incorporated so much of the Emily vein within it. There is nothing curious about that that I can see.

* * * * *

"Q. Is this gouge that passes through the Emily a Poser vein gouge or fissure?

"A. It belongs to the Poser vein; yes."

So that is the Poser vein here! In view of this testimony can one be surprised that an intelligent and discerning trial Judge should express himself as follows? (Opinion, V, 2237):

"But when it comes to facts, the testimony of plaintiffs' experts, to considerable extent, coincides with that of defendant's experts, demonstrates that the Poser vein is intersected by veins of both east-west and northwest ages, and that their inferences, opinions and conclusions to the contrary are not only valueless but also are reckless evasions. It would seem that they count too much upon credibility and lack of discernment in the Court. To illustrate, Burch testifies that on the 500 level 'we find the *Poser* also on both sides of the *Northwest vein*, but a very light crack crossing the *Emily vein*, *very light indeed*.' The northwest vein is identified as the *Emily vein*. Simkins testifies that on this level the *Poser vein* is wider than the drift in which it is located and which is crossed by the *Emily vein*, and that only a 'wall' cuts through the *Emily*, 'possibly about 1-2 inch' of gouge. Lawson testifies that this gouge is less than one inch; that there, the *Poser vein* is many feet wide, and is *on both sides of the Emily vein* there crossing."

But if such evidence does not fall of its own weight, one of its own proponents kills it by the theory he devised to sustain his transverse structure. It will be observed that the *Poser vein* as it comes against the *Emily* is mineralized granite. How it can be said that this mineralized granite belongs to the *Poser* and not to the northwest *Emily* is not explained. The *Poser* then goes through the *Emily* solely as a half-inch or inch of gouge, with the *Emily* structure abutting immediately against it, but absorbed into the *Poser*. Mead says this gouge is a

fissure associated with the Poser, whatever that may mean. Lawson says it *is* the Poser and with the abutting Emily structure expropriated.

This narrow streak of gouge is shown on appellee's level map (Ex. 97, Diagram D). It has a northeast-southwest course and if projected southwesterly it would intersect the south branch of the Emily in 566 working about 100 feet *southerly from the short 576 working in which appellants place their Poser vein across the southerly branch of the Emily*. Therefore, it is not in alignment with the projected course of the Poser vein through this territory. But that is a mere incident. Its slight displacement of the Emily from a few inches to two feet as variously stated by the witnesses, *is to the left* as shown by the map and testified to by Steele (IV, 1572). Now Mead presented in support of his stress theory producing transverse structure an exhibit (No. 44). This has been inserted in the appendix to appellants' brief as Diagram 21. It shows that the stresses which produced this peculiar result were pressing easterly on the north wall of the Poser vein and westerly on its south wall, so that if the stresses which produced the transverse structure were the same stresses that fractured the Emily and displaced it in 582 working, the movement would have been *easterly on the north wall and westerly on the south wall. In other words, the movement at these points of crossing of the Emily would have been in the direction opposite to that disclosed by the exhibits and testimony.*

We referred to this paradox in our brief in the trial court, especially with respect to exactly the same movement by a similar gouge streak crossing the Emily on the 700, and later herein mentioned, but also referring

to the identical situation in 582. By their reply, *appellants then said* (page 53 of their reply brief below):

"Plaintiffs' brief, page 151, is cited to the effect that the brown colored gouge shown on defendant's 700 level map *displaces the Emily to the left* (exactly as it does in working 582). *This structure is not claimed by plaintiffs to be the Poser vein*, but as is expressly stated on this same page of plaintiffs' brief it is 'associated with what plaintiffs claim is the Poser vein.' *As witnesses on both sides have testified, there is evidence of postmineral movement along these veins.* Whether these dislocations took place at the time of the formation of the Poser vein or subsequently does not appear. These examples occur at places far apart and are *not necessarily connected with the original Poser fracturing.* They may easily have resulted from post-mineral Poser movements and accommodation of the ground to stresses. Counsel claim that there is a manifest inconsistency between Exhibit 44, which was introduced by Dr. Mead to explain the dynamics of the formation of the Poser vein, and plaintiffs' Exhibit 12, being their 700 foot level map, and which counsel claim discloses a displacement of the Emily by the Poser in the opposite direction from what would normally be expected if the transverse structure were the result of stresses. It is, of course, perfectly obvious that these transverse structures must have been produced by some sort of stress, and Dr. Mead's explanation, based on exact scientific demonstration, shows just how this was caused. The fact that locally at widely separated places varying displacements of different structures occur along the course of the Poser *some of them undoubtedly due to post-mineral movement* does not militate in the slightest degree against Dr. Mead's convincing explanation as his own statement would indicate."

So, after all, the only portion of the Poser, as described by appellants' witnesses, found crossing the Emily in 582, a narrow streak of gouge, *is not a part of the Poser at all.*

It represents a *post-mineral movement* as appellee claimed. We assume that if no part of the Poser went through the Emily, no incorporation of Emily mineralization could be accomplished. By appellants' own admission the last vestige of their claim of a crossing of the Emily on 500 disappears. We shall show the same to be true on 700 when we reach that level.

A legitimate sequel to this abandonment of the displacement in 582, as due to the Poser, is this. Geology of Butte teaches that where a later fissure cuts and crosses a pre-existing fissure it displaces it to some extent. In the case of the Black Rock fault this displacement is from 150 to 200 feet vertically. The probability of displacement is increased if it be true as claimed by Mead himself that the Poser zone was crushed and broken (II, 645). But Mead testified that the only place in the mine where he had seen an actual displacement which he could identify as having been produced by the Poser was in this working 582 on the 500 level (II, 628).

Now that it appears that this was not a displacement produced by the Poser vein fissure, the case is stripped of any instance where the Poser vein displaced even in slight degree any prior structure. One of the greatest obstacles to proof of a later age vein being thus removed, all that is necessary to create a vein in Butte are a series of east-west and northwest veins and mineralized granite. It is comparatively easy to paint such a vein under appellants' adopted theories, if no displacements need be explained.

We now consider the alleged short exposure of the Poser vein in workings 580, 574, etc., 350 feet west of the alleged Emily crossings in 576 and 582. This wide

and critical space left undeveloped is most significant. The Emily vein with its northwest strike and northerly dip is found on this level considerably west of its location on 700 level. A vertical plane through 576 working, alleged to be on the Poser as it "crosses" the southerly branch of the Emily, and extended to the 700 level, would represent about the westerly boundary of the "transverse structure" section of the Poser on the 700 level west of the Emily. Why did not appellants drive west on the "Poser" from its alleged crossing of the Emily on the 500 level? Were they fearful, as they well might be, that the *northwest* structures out of which they created the *east-west Poser structure* on the 700 level would thereby be shown to have united with and merged into the Emily before they reached the 500 level?

What method was adopted? The answer is found in developments to the west. Here appellants drove a long north-south crosscut 579. They allege that the Poser vein was disclosed therein at the places indicated on the map. Upon discovering this—if it was discovered at all, which we deny—they did not follow the vein west to the 581-A raise on the west end line, but continued crosscut 579 to the south line of the Poser claim. This can only be explained by the statement that they did not find their vein as alleged. Then they came back and, instead of following the "Poser" west, they ran another drift 562 westerly and parallel to the alleged course of the Poser but considerably north therefrom. Here, as in many other places, appellants preferred to go west off of the alleged vein rather than on it, even at the expense of much additional work.

Now as to workings 580, 574 and 584, where the

claimed vein is placed: It will be observed from both maps that a northwest vein, which appellee says is the Jessie, goes through this territory. That was a convenient place in which again to "appropriate" and "incorporate" northwest structure into the Poser and appellants availed themselves of the opportunity.

Appellee's witnesses unite in saying that in these workings there is nothing but the northwest structure of the strong and well featured Jessie vein (Sales, II, 1006, V, 2170-1; Bateman, III, 1294-1295, V, 2193; Barker, III, 1411, V, 2207; Steele, IV, 1574; Wiley, IV, 1694).

The sum and substance of the testimony of appellants' witnesses is that they admit that a northwest vein goes through this territory, but as Burch says (I, 196):

"The northwest vein is found on both sides of the fracture *with the Poser mineralization mingled more or less with the mineralization of the northwest vein in the crosscut.*"

Practically the same theories were adopted by appellants here where they encountered the *northwest* Jessie vein as they followed on the same level where they met the *northwest* Emily. Mineralized granite clearly associated with the Jessie and the Emily was made the mineralized granite Poser vein, and the Poser was "superimposed upon them" and "incorporated in them" (Lawson, II, 887). The theories respecting the Emily crossing have been so thoroughly dissipated that nothing more need be said respecting the Jessie except that where it was met appellants did not have the benefit of even a half inch gouge slip as representing their vein, but eventually admitted to be a post-mineral movement.

The next location of the Poser vein to the west is at

581-A raise, one of the west end line raises claimed by appellee and found by the Court to be on the Black Rock fault. This is merely an exposed point. If the vein existed there it might have been developed by drifts east upon it to connect with the alleged exposures in 580, 574 and 584 considerably to the east and through entirely unknown country. This was not done.

Before leaving this level we ask the court to note the great number of northwest veins and seams adjacent to the Emily and the Jessie in the appellants' crosscuts in the vicinity of the northwest veins, delineated on appellant's map as fully as on appellee's *and not claimed to be a part of the Poser vein*. This same condition is also noticeable on the 700 level and elsewhere where appellants seize upon northwest structure for their transverse fracturing. Is there any question relative to the source of "mineralized granite" in such country as this?

Not only did appellants leave the Poser vein undeveloped horizontally on this 500 level, but they made no effort to follow it upward or downward by raises or winzes, except at the east end (on the Pilot) and on the west end (on the Black Rock fault).

700 LEVEL.

We are now 700 feet underground, with no longitudinal development on the Poser vein on any level above, and we have reached the horizon which Burch says is "the highest level upon which we have a full connection in tracing the vein from end line to end line" (I, 147). With what success this "connection" and "tracing" was attended, we are now concerned. Diagram E, appendix, contains copies of appellants' and appellee's

geological 700 level maps (P. Ex. 12; D. Ex. 98), which we ask the court to note preliminarily to reading the following discussion as they are most significant. Starting from the east, both show the "Poser" vein from the east end line raise 726-A followed by drift 726, westerly to a point in the vicinity of the northwest structures constituting the Emily vein or its branches, shown in blue on appellee's exhibit and in yellow on appellants'. The structure in this portion of 726 is undoubtedly a vein—the Pilot as claimed by appellee. It is a true fissure vein (Mead, II, 654), "a well banded vein" (Roddewig, I, 429). Mineralized granite was not required by Burch to describe it. He said (I, 149):

"At the eastern end we find a broad vein, something like 40 feet in width made up largely of stringers and bunches of manganese and quartz with various sulphides."

A vital question in this case—an insurmountable one for appellants—is whether the "Poser" or "Pilot" vein found in 726 drift east of the Emily and having these plain fissure vein characteristics, throws off that garb and assuming another one consisting of transverse structure (having the course of the Emily itself) and mineralized granite, crosses the Emily incorporating the latter's structure as it goes. Appellants claim that it does and have the burden of proof. Appellee claims that it does not, and the trial court so found. We discuss this a little later.

On appellee's map the Black Rock fault is shown in green coming into drift 728 at the place indicated, and continuing on to the west end line practically along the line painted on appellants' map for the Poser vein. Ap-

pellee's witnesses testify that the fault is found as indicated on its map (Sales, II, 1017-21; Bateman, III, 1297; Barker, III, 1418-22; Steele, IV, 1560-5; Wiley, IV, 1695-7). With respect to the involved situation west of the point where the Black Rock fault comes in from the north appellee's witnesses testify substantially as follows, beginning from the west end and going east:

The Black Rock fault is found in 747-A raise on the west end line, and is followed easterly through drifts 716 and 734 to its contact with the North State vein, a well known vein of the first or east-west age, and is the faulted segment of the same vein found in 1058 drift on the 1000 level later described—a prelitigation drift on the vein there but not now claimed as the Poser, this vein in 716 drift being on the hanging wall side of the Black Rock fault, as disclosed by appellants' model, whereas the same vein in the 1000 level is on the footwall side of the fault. Drift 716 proceeds easterly on this North State through the foot of 716-A raise until the North State vein is cut and faulted by a northwest vein, probably the Jessie, going through working 751, the faulted segment being found in 728 drift east of 751, this being a typical faulting to the left of an east-west vein by a northwester. In its turn when the northwest vein encounters the Black Rock fault it is cut by that fault as indicated very clearly on the maps (Diagram E), especially by appellee's. West of that in 716 drift west of 737 crosscut the Black Rock fault cuts and faults the North State vein.

(Sales, II, 1017-20, III, 1150-3; Bateman, III, 1302-4; Barker, III, 1418-20; Steele, IV, 1560-2; Wiley, 1697.)

One most significant geological fact in this westerly section is found in this: In the easterly end of 716 drift

appellants incorporate within their red painted Poser vein, *affirmed to be of Steward-age*, the vein shown in red on appellee's map and said by it to be the North State vein of east-west or the oldest age. On both maps a *northwest* blue vein said by appellee's witnesses to be the Jessie, is shown coming in from the southeast and cutting and displacing the other vein. The fact is so clearly shown on both maps that no testimony confirming it was required, but nevertheless it was given by Barker. (II, 1419), and by Steele (IV, 1560-1). It was not denied by appellants' experts.

Their demonstration is this: The vein in 716 drift, the North State as claimed by appellee, and being the vein followed and claimed by appellants for a long distance west in 716, must be older than the northwest vein. It cannot be of the Steward-age to which appellants say the Poser belongs.

While through this section of the level appellants painted their vein with a broad flourish over the several workings, there was practically no dispute of appellee's geology. While Burch did not think that the Black Rock fault came in to 728 working as appellee's witnesses testified, he admitted that it came in a little further west, and also that there were several gouges similar to the Black Rock even in 728 which, he said, he could not correlate with it (I, 256, 261). Mead testified that it was probable that the Black Rock fault came into 728 working and continued west in 716, but he did not know how far it went; though he admitted that there were gouges in 734 near the west end line, whether they were the Black Rock he did not know (Mead, I, 651-2).

Appellants did not have to rely on transverse structure

in 716 drift where the North State vein was located by all of appellee's witnesses. It is "a manganese quartz vein with some sulphides in it, covering a width of 10 or 12 feet through the area in 716. It is a vein containing large quantities of zinc and has been stoped" (Simkins, II, 714-5).

Roddewig says (I, 328):

"In that territory it is a vein of considerable dimension. I would say 8 or 10 feet wide, and contains considerable zinc ore. It was mined for ore purposes at that point."

The stope so referred to by Simkins is *the one stope* on the alleged Poser vein in the entire mine. It is small in extent and in their testimony above referred to appellee's witnesses said it was upon the North State vein. Not only did appellants do a little stoping here, but they attempted to raise on the vein up to 500 level—one of the few raises off of the Black Rock fault or the Pilot vein outside of the abandoned raises at the east end already discussed. This 716-A raise started up on the North State vein. Apparently the dip did not suit appellants so about 4 floors up the raise they left the North State vein and crosscut to the north through the Black Rock fault, then the raise was driven as a crosscut in a northerly direction to about 80 feet above the 700 level, then two crosscuts were driven north and south. The south crosscut cut through an upward extension of the Black Rock fault, and a portion of the North State vein from which it had departed below (Steele, IV, 1568; Barker, III, 1421; Wiley, IV, 1697-8). So this raise driven up on the vein in which is the only "Poser stope" ended on its course upward to the 500 level, about 80

feet from its foot and 120 feet from the 500. It is strikingly noticeable that any vein *projected* from 716 level to the point in the 500 level above where appellants place their vein in 579 crosscut heretofore discussed would have gone up with a dip of 55 to 60 degrees to the north, and if continued on the same dip to the surface would have apexed clear south of the Poser claim (Steele, IV, 1568-9). Furthermore, if the North State vein as found in the crosscut at the top of 716-A raise continued on its same dip to the surface it would also apex south of the Poser claim far distant from the Poser vein apex as claimed (Barker, III, 1421).

This situation is depicted in appellee's cross-section 306, its Exhibit 123.

While appellants' bill of particulars did not locate their vein in this raise, Burch says it is there (I, 279):

"In the 716-A raise, the vein is followed upward to the point where the raise begins to turn off to the north. There the raise leaves the vein and goes on northwesterly, up to the north of the vein, and a cross-cut was driven south from the top of the raise, and encounters it again southerly.

"Q. And then the raise was abandoned?

"A. I suppose so; I don't know."

Note what happened; the raise starts on the "Poser" vein (North State), goes up a short distance and leaves the vein, a crosscut is driven south in the raise, the vein is again encountered and apparently because it has the wrong dip as above noted "the raise is abandoned."

Summarizing this westerly portion of the 700 level, it is clear that the Poser vein structure consists of the Black Rock fault fissure, a considerable length of the North State vein including segments faulted by a north-

west vein (Jessie), and crosscuts of the northwest vein itself.

This leaves for discussion the middle section between a point east of the Emily and the point about where the Black Rock fault comes into the workings in 728 drift. The fissures which constituted the Poser vein at either end having disappeared, appellants invoked their transverse structure theory and built a vein out of northwest veins.

We preface the discussion of this phase of the case by asking the Court to observe upon the level maps of both parties the great number of northwest veins and seams in all the workings on the level. Taking 702 east-west working shown on appellants' map far north of the red Poser vein, *appellants' own* geology shows many of such northwest seams, 28 in all (Bateman, III, 1377). Appellants' mapped geology of the Emily on either side of the "Poser" shows a multitude of seams running in every direction. These are not included in the Poser vein, but they indicate the general fissuring of the country (Sales, II, 1017).

Roddewig described the vein in this section as

"a *northwest* fracturing of the vein consisting of small veinlets of sulphides and quartz within thoroughly mineralized granite. Those veinlets appear to terminate in the vicinity of where the boundary of the vein is located" (I, 430).

Both the south and the north walls of the vein are "an indefinite margin. It is a place where the mineralization of the *Poser vein* fades out against fresh granite. There is no distinct line that can be laid down as to just where the mineralized granite stops" (Roddewig, I, 430).

Witnesses for both parties agree that all of the veins or seams constituting the alleged vein in this area are of northwest strike and not along the east-west course of the painted vein, but they differ widely on the conclusions to be drawn, it being claimed by appellants' witnesses that this is transverse, oblique "Poser type" structure, and by appellee's witnesses that they are nothing but a series of northwest veins or seams, parts of or associated with the Emily and similar in character to those depicted in workings outside the Poser vein on appellants' map, and do not constitute any east-west vein whatever. (Roddewig, I, 430; Mead, II, 620-1; Simkins, II, 715; Lawson, II, 903; Sales, II, 1014-17; Bateman, III, 1297-1302; Barker, III, 1414-17; Steele, IV, 1563-5; Wiley, IV, 1695-6). *The conflict was decided by the lower court in favor of appellee.*

Appellants apparently conceded that in other places on this level where the northwest veins or seams appear they cannot be correlated into a transverse structure, for example in 702 working. But because they claim that there are more of such veins or seams along the line of the Poser, with more "mineralized granite" intervening, their significance is entirely changed. For instance, Simkins said (II, 717):

"Well, if one vein were seen it would appear that it was a *northwest*, but the multiplicity of the veins which are exposed there indicate that there is more mineralization and a definite structure to the east-west rather than northwest, particularly as fresh granite is found on either side of that area."

Veins ordinarily have a strike and dip, but a peculiarity of the Poser is that it is difficult to determine its strike

or dip "because the walls * * * are more or less indefinite," and "there is a fading of the mineralization in the fresh granite. There is no plain line of demarkation" (Simkins, II, 716). And Mead says (II, 547):

"At any point along this vein you cannot take a strike and dip, because obviously the structures are not parallel to the vein, but take it in a large way, it has very obviously a lateral feature along it."

While on this subject we note that appellants criticise the district court because it said that the Poser vein west of the Emily was a "structure without dip, strike or definite walls" (V, 2239, Appellants' Brief, p. 115). The testimony of Simkins and Mead just referred to is in itself ample confirmation of the court's statement. Notwithstanding this, appellants point to their exhibits of the 700, 1000 and 1300 levels, etc., as corroborative of their criticism but on these the strike and dip are formed by paint out of which any desired geological structure may be depicted.

Never before has it been claimed that Butte structures contain this abnormality.

As indicative of the total unreliability of such testimony which weighs in the balance the number of northwesterners required to constitute the transverse structure, take Simkins' testimony. His attention was called to the great number of northwest veins in the east-west 702 working north of the Poser and also to the 726 and 740 workings where appellants place their Poser crossing of the Emily and there depend on northwest features. Simkins admitted that probably some of the northwest structures constituting the Poser vein in 726 and 740 reached and are shown in 702, "there are about half as many *left in 702*

than there are in 740" (II, 760). If this be true, the Poser vein should have been painted ten times as wide as it is through this territory, and with Lord Clive, appellants should exclaim "we are surprised at our own moderation"! If it is the gradual fading out of northwest structures into fresh granite which marks the "walls" of the Poser vein, the fading out is not complete until all of the Poser's northwest transverse structures disappear. Burch says (I, 150):

"The lode has no defined walls there, but the boundary is determined by the change in the appearance of the rock *which would be very evident to any miner.*"

It never was "evident to any miner" as will be indicated when we get to the 1000 level next below. Furthermore, it is displayed by what happened in 747-A raise from this level on the west end line following the Black Rock fault as claimed by appellee and found by the Court (V, 2243). Appellants claim their Poser vein is in this raise in which, as Burch says, "there is a peculiar turn."

"That does not look natural, but it is a fact. The first part of the raise, *without being closely watched, as being driven by the miners, was driven up into granite*, which is painted white on the model. Later examination showed very clearly that they left the vein which turned off *from the fault* towards the south, as you go up. Then it straightens again, and is followed up to the 500-foot level. Now in that section of the vein, we have mostly *mineralized granite and gouge*" (I, 191-2).

So it seems that the Poser vein is not so evident "to the miner" as Burch says. The miner must be carefully watched by the litigation manager or he is apt to get off

of the "Poser structure" along gouge and into granite.

With this general description we direct attention to where appellants say their vein crosses the Emily, denied by appellee and found not to be true by the trial court.

It will be observed that among the numerous meandering workings driven by appellants to prove their Poser vein through the Emily are three drifts, in reality cross-cuts of the Emily, Nos. 726, 740 south of 726, and 736 north of 726. Nos. 726 and 740 are placed in the Poser vein, and 736 is north and outside of it. Burch, describing the crossing through here, said (I, 149):

"The northwest vein (Emily) is broken up in fragments by the Poser as it passes through *and is dislocated, to some extent*, and it is rather difficult to say which of the three veins painted on the northern side of the Poser is the same as the vein which had been traced continuously on the southern side in this No. 752."

And again he says (I, 228):

"Then on the 700 foot level in the 740 and 726 drifts the Poser distinctly crosses right through the Emily and breaks it up into fragments. Those fragments are found in various places within the Poser vein itself, *but you can recognize them as probably fragments of the Emily vein.*"

But he says respecting this vein that "crosses right through the Emily," that it has no definite walls (I, 258). It has oblique northwest structure having the strike of the Emily, and recognizable as "probably fragments of the Emily," it has no definite walls, and yet Burch recognizes this peculiar structure as the Poser crossing the Emily! Roddewig says that all the veins and veinlets in 726 and 740 have a northwest strike, and the Emily is a strong vein (I, 431-2). Mead says "that there is no east-

west structure, and I don't think I mapped any; no, I don't see any east-west structure here" (II, 650-1).

On appellee's map of this level is shown a small brown northeast striking gouge. Lawson admitted this gouge and testified on cross-examination (II, 885):

"Q. So that what you term your Poser vein to the north of that gouge *is the stub of the Emily right into it?*

"A. In it, yes.

"Q. So the Poser vein did not destroy the Emily or cut it off until it got against this northeast striking gouge?

"A. That is true."

Now, it will be observed that Burch lays stress upon this gouge displacement of the Emily, and Lawson indicates by the testimony just quoted that the Emily vein abuts against this gouge. In cross-examining Wiley, appellants' own counsel made much of this displacement as indicative of the Poser crossing (IV, 1772). It is clearly evident that appellants' witness Burch, who says that the Emily is broken into fragments by the Poser "and is dislocated, to some extent," and also appellants' counsel, if not Lawson, advanced this as evidence of a displacement by the Poser and therefore of its crossing. But as the movement is directly opposite to what it should be under Mead's stress theories, appellants later ran to cover respecting this and disclaimed it as a Poser movement or displacement. They said it is post-mineral. This is fully covered in the discussion of an identical situation on the 500 level (*ante*, pp. 142-150).

We have stated that appellants exclude from the Poser vein crossing the Emily, drift 736 just north of the parallel workings 726, and 740, in which the vein is placed.

They do this because they say that there are more northwest veins or structures, "*quite* a few more" (Simkins, II, 761), and more mineralized granite in 726 and 740 than in 736, and they indicate that between 726 and 740 the north wall of the Poser has intervened, an indefinite line not capable of demarkation except by the fading out of the northwesterners and mineralized granite. But appellee's witnesses say that there is no appreciable difference in the structures in these three workings, that all are marked by the same northwest structures, and Bateman counted 14 of these structures in 736, off the "vein," as against 13 in 726, on the "vein" (Sales, II, 1016; Bateman, III, 1301-2; Barker, III, 1417; Steele, IV, 1564).

Conclusive proof on this subject is displayed by Mead's mine notes on this area, supposed to represent his observations in the ground, and which were introduced as appellee's Exhibit 54. A reproduction thereof is in Diagram O, appendix. This is highly illuminating. It shows much the same fissuring in the 736 working as in 726 and 740, and above all it shows that if appellants' theories are sound, too narrow a brush was utilized by appellants in painting the Poser vein across the Emily.

Appellee's witnesses testify that the strong Emily vein is not in the least cut, dislocated or crossed by any structure such as is claimed by appellants (Sales, II, 1013-6; Bateman, III, 1298-1302; Barker, 1417; Steele, IV, 1560-4; Wiley, IV, 1695-7).

Their position is exemplified by the testimony of Sales and Bateman:

Sales says (II, 1014-5):

"Q. All right. Now, 726 coming westerly, the workings going westerly from where you first encountered the Emily, what is shown?

"A. Well, cross-cuts through the Emily vein. The Emily vein there is very wide, 10 to 15 or 20 feet or more, very strong mineralized and particularly the northwesterly drift; just to the west of 756 is driven on a very well defined vein, carrying considerable amount of copper in the form of chalcopyrite and a lot of zinc. It is a very good looking vein."

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"740, 726, 736 are all cross-cuts through an area of ground where the vein structure whatever it is is northwesterly and southeasterly parallel to the Emily. There are a number of small veins, probably six or seven that will vary from possibly two inches up to 12 or 15 or 18 inches; these are very well defined and they generally dip to the north and they have a strike of about north 30 to north 45 west. They are well mineralized, zinc and quartz and manganese, and are clearly seen. There is no question about their position, strike and dip. Between these smaller veins or stringers it is very largely granite in place and a good part of the way it is practically fresh granite, although at other places there are probably some alteration seams like you nearly always find in a granite country, there will be some alteration seams showing; there will be blocks of fresh granite with these little alteration planes around them. Now, that is about what is in all these drifts. There is nothing running easterly and westerly. There is nothing there to indicate at all that there is any west vein; a few northwest southeast veins or small veins or stringers, if they belong to any vein they belong to the Emily vein, they are parallel to it, just the same and look like it, dip the same and there is no reason to correlate those small veins with anything else but the Emily, as far as I can see."

Bateman says (III, 1297):

"Starting from the point drift 752 discloses a

strong Emily vein, this vein on this level is not a single, simple fissure, but breaks up into two main branches, and there is here a whole zone of fissuring which unquestionably I think is all a part of this sheathing of the Emily.

"I might say it is a very common feature in many large fractures, particularly where there has been movement along them for them to have parallel fractures. It is a common, familiar term to geologists; we call it sheeting because it represents somewhat the sheets of a paper, more or less parallel to it.

"Now, I would characterize this country in here as a more or less sheathed zone of the Emily fracture."

The testimony of these witnesses is plainly confirmed by a consideration of the level maps of both parties. Plainly, appellants have simply superimposed their Poser vein over the Emily and associated northwest fractures through this territory as they did on the 500 level. The difficulties which they encountered not only in *following* but in *finding* their Poser vein on this level on either side of the Emily, are exemplified by their divers and inconsistent litigation workings platted on the maps.

The raises run by appellants from this level develop the total failure to find any Poser vein structure correlating with anything above. At the east end line 726-A raise does go up on a vein but it is the Pilot as appellee contends. At the west end is 747-A raise which appellee's witnesses say is on the Black Rock fault (Sales, II, 1021; Bateman, III, 1304; Barker, III, 1422; Steele, IV, 1565). It was impossible to secure a definite admission from appellants' experts that the Black Rock fault was in the foot of this raise at the west end or in the raise, but Burch inadvertently admitted it when he explained how

the miners in driving this raise got off the Poser vein "which turned off from the *fault* towards the south" (I, 191).

We have already described raise 716-A starting on the North State vein and finally abandoned after much cross-cutting therein. But another one, 728-A, deserves mention. The location of the foot of this raise is shown on the 700 level maps (Diagram E), and in appellee's cross-section 309, Exhibit 122. It was driven up to within 60 or 65 feet of the 500 level when work stopped "because it was far enough" (Burch, I, 280). He claimed that at the top of this raise, on the footwall side, not on the roof, was "mineralized granite" (I, 279).

For appellee, Steele says this raise simply cuts a number of northwest striking veins similar to those in 740 and 726 crosscuts and at the top is a small *north* dipping slip in one corner, otherwise the raise is in granite (IV, 1567-8).

Sales described it (III, 1025):

"In 728-A raise there was shown a number of small northwest-southeast stringers having a north dip. These were separated by granite; the raise following upward, did not follow continuously any of these small veins, and the upward part of the raise shows that in the natural top of this raise there is a small stringer from half an inch up to two inches of quartz and zinc having a strike of about north 30 west having a slightly *north dip*. The rest of the top of this raise is in granite; the top floors on the west side of the raise shows altered granite."

If this raise had been continued in its own direction at the top to the 500 level it would have holed out 50 or 60 feet *southwesterly* from 576 working where appellants placed their Poser vein on that level (Sales, III, 1025).

Under this condition, of course, Burch thought it had been driven "far enough."

Appellants' attempts at raises from this level are well summarized by Burch on cross-examination (I, 281):

"Q. Now, since this litigation was started, there has been driven by the plaintiff on the 700-foot level, 747-B raise, which was driven up about 75 feet, and the work stopped; the 716-A raise, which was driven up and a cross-cut put on the top of it, and the work stopped, and the 728-A raise driven up to within 60 or 65 feet from the 500 level, and the work stopped, and at the present time you have no raise from the seven to the 500 well above the 700, east of your west end line raise, until you get into the vein east of the Emily, haven't you?

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"A. No, sir; we haven't any."

1000 LEVEL.

This is the next level below the 700 and Diagram F, appendix, contains copies of appellants' and appellee's maps of this level showing geology (P. Ex. 14; D. Ex. 100).

Before proceeding to discuss *litigation* developments and claims on this level, we ask the Court to note what was done thereon by appellants in legitimate mining development before litigation was conceived. Its value in this case is emphasized by the decisions hereinbefore cited (*ante*, pp. 50-53).

The Court will observe in the easterly portion of these maps an east-west drift numbered 1052, along the Pilot vein, as claimed by appellee, and the Poser as claimed by appellants. This drift had been run prior to 1913 from the Elm Orlu workings for the development of the Poser claim. It was run on the clearly defined vein, the Pilot,

to about the point of its contact with the Emily. At that point those in charge of the operation did not then discover the clearly defined east-west "Poser" structure extending through the Emily, as now claimed by appellants' experts, and painted in red on their map, but instead turned slightly to the north and extended their drift 1052 westerly along a small east-west vein, as shown on appellee's level map, *and far separated from the present Poser vein*. They then turned and cross-cutted southerly along working 1063 to a point 22 feet within the present claimed Poser vein structure (III, 1086), and turning back slightly from this crosscut, *they drifted over 300 feet on the North State vein, in drift 1058, and which they expressly disclaim as shown by their testimony and by their plan map of this level (Diagram F), as a part of their Poser vein though the latter lies immediately to the south* (Burch, I, 233-4; Roddewig, I, 353-4, 357, 367-8, 371-3; Sales, 1031-2; 1085-6). Roddewig says that possibly the vein encountered in 1063 crosscut was not recognized as the "Poser vein" by those in charge when it was found in 1913 or theretofore (I, 374). This is singular if the vein is manifest even to an *inexpert* person "once it is pointed out" (Mead, II, 556), and is "very evident to any miner" (Burch, I, 150). However, it is perfectly obvious that it was not so recognized, and the most probable reason was that the theory upon which this litigation was founded had not then been conceived. "The mode of attack" had not then been "applied to the problem at hand" by Burch (Roddewig, I, 405). It is clearly evident that the only structure found at about this point in the crosscut 1063 was the North State vein, and upon encountering it

there, the miners, under direction of appellants' management, proceeded to drift on that vein about 300 feet through working 1058. After this work had been done, and also in the year 1913, appellants sank a vertical winze on this vein from drift 1058, a distance of about 90 feet, and a short drift to the west and crosscut to the north was run from it (Harper, II, 936-7; Roddewig, I, 355; Sales, III, 1031-2). About this time, and in 1913, appellants or those of them interested in the Poser claim, asked for and received permission to examine appellee's Badger mine workings, and thenceforward to the present, they have enjoyed that privilege (Sales, II, 972, 976).

There is another significance to be attached to this North State vein in 1058. It is a good strongly featured fissure vein, eight or more feet wide, with quartz and sulphides prominently banded (Bateman, III, 1310). Lawson says that it "seems to be" that there is no mineralized granite appurtenant to it (II, 892). Yet immediately to the south lies the "Poser" vein distinguished solely by mineralized granite not exposed longitudinally, but by a few cuts across 1058, with the vein projected by dotted lines between them (Burch, I, 206-7; Simkins, II, 722-3). It is there "a strongly mineralized zone with strands of gouge" (Mead, II, 578).

In truth, there is but one explanation for the exclusion by appellants from the "Poser" vein of this fissure vein in 1058. It had the wrong dip, which was vertical or north of vertical, and apparently its apex would be in appellee's ground. But singularly enough the "mineralized granite" Poser vein of *Steward-age unites* with the *east-west age* fissure vein in 1058 "going up, and departs from it going down, at least, that seems to be the appear-

ance in the other sections to the west" (Burch, I, 207). How such "mineralized granite" can be dissociated from the North State vein and appropriated by the Poser is not clear, certainly not if Sales was correct in both his scientific papers and his testimony in saying that there is more alteration along east-west veins than along those of younger age (Sales, II, 963-5; III, 1265-6).

One more thing about this North State vein in 1058. Appellee's witnesses testify that this is the same North State vein as the one in 716 working on the 700 level, which is there *included* in the Poser while it is *excluded* from the Poser on the 1000 level (Sales, II, 1018, III, 1029; Bateman, III, 1302-3, 1310; Barker, III, 1416-9, 1429-30; Steele, IV, 1560, 1581; Wiley, IV, 1696-9). Some of appellants' experts attempted to deny this, but when it is considered that they agreed that the vein corresponding in alignment in 1340 drift on the 1300 level just below was the same vein as on the 1000 level (Rodewig, I, 435 Lawson, 11, 897), the correlation with the vein in 716 is clear. Certainly the strong vein on the 1300 and the 1000 comes up to the 700. If it is not the vein in 716 drift on the 700 level, appellants have failed to locate it on that level. Consequently we find that on the 1000 and 1300 levels appellants avoid and disclaim because of its dip inconsistent with their necessity, the same vein which they incorporate in the 700 level above at the only place in which they claim a stope on the Poser vein in the Poser mine.

Now, coming to a general view of the 1000 level. The Black Rock fault which in upper levels came into the alleged "Poser" vein only in the western part, has now on account of its dip to the south appeared farther east

and is utilized as the fissure for the "Poser" throughout the greater part of the 1000 level. At the easterly end is still found the Pilot fissure vein following along working 1052 until the area of the Emily vein is reached. Down to the 700 level above, appellants had a line of raises on this Pilot vein *at the east end line*. As we have already explained they tried to raise to these from the ore bodies in the eastern end but failed and the work was abandoned (*ante*, pp. 95-100). Perhaps anticipating failure to make connection on the east end line plane, and being desirous of tying into the Black Rock fault with its convenient southerly dip, appellants moved westerly on the Pilot to a point about 300 feet from the east end line and then raised on the Pilot to the 700 level. This is 1043-A raise and like the Pilot raises from the 700 level to the surface at the end line, it is practically vertical. It will be observed from appellee's map of this level (Diagram F), that this raise started at about the point where the Pilot, the Emily and the Black Rock fault came together. That map shows the Black Rock fault coming in from the east through 1092 working *and thence extending to the Poser west end line, along the exact course of the red painted Poser vein on appellants' map, and appellants' witnesses admitted this* (Roddewig, I, 437; Mead, II, 632-3, 654).

Therefore, in the consideration of this level it must be remembered that whatever else may be in the "Poser" vein throughout, the Black Rock fault is there.

Now, in connection with driving the 1043-A raise *vertically* upward, appellants drove another raise 1376-A from the 1300 level below up to the 1000 level on a pronounced *southerly dip*, and on an entirely different

character of structure which the appellee says is the Black Rock fault. This raise holed into the 1000 level about 10 or 15 feet westerly of the foot of 1043-A raise (Sales, III, 1043). In order to demonstrate that appellants' 1376-A raise was on the fault and not on the Pilot or Poser vein, appellee ran 1092-A raise upward from near the top of 1376-A raise, *on the fault and with the same dip* as 1376-A. The relative dips of these three raises are shown on our Diagram S.

Appellants claim that 1043-A and 1376-A raises are on the same structure, namely, the "Poser" vein, but two great obstacles confront them. First, the sudden change in dip of the "Poser" or Pilot from one slightly to the north down to the 1000 level to one severely to the south in 1376-A raise. Second, the great difference in structure between the vein in 1043-A and the alleged vein in 1376-A.

With respect to the admitted fissure vein in 1043-A, appellants' witness Burch said (I, 179):

"We have, going downward from the 700 level * * * the 1043-A raise, *which is upon a vein with rather clearly defined walls, made up of quartz, manganese and some sulphide*, down to within about 20 feet of the 1300-foot (apparently an error for 1000-foot) level. There the vein is more or less crushed, due no doubt to action along the Black Rock fault near by, and we find the same mineralization here, of quartz, manganese and mineralized granite, but in a crushed condition, until we get down to the level."

Now, note how he described the "vein" in 1376-A raise (I, 179):

"Then following the 1376-A raise downward, we have chiefly within the vein there *mineralized granite of the same type that we find in the middle section of the 700 foot level.*"

The Court will remember that the "type" of mineralized granite in the 700 level was the oblique, transverse structure without dip or strike, without walls except edges fading out into fresh granite. That is the character of "vein" claimed to be the *oblique* continuation below the 1000 level of the *vertical* fissure vein, with clearly defined walls, composed of quartz, manganese and sulphides which came down to the 1000 level in 1043-A. In other words, the vein when it reached the 1000 level changed not only its course but its entire character. When we come to the 1300 level, we shall show further the remarkable change which has come over this Poser vein in this area, as attempted to be accomplished by appellants.

Bateman said (III, 1308):

"I might say, as I came down these raises I was immediately struck in passing from the quartz manganese vein to a section here that the ordinary miner terms a dry fault. It is a hard leathery gouge in place right along here, but it does not show evidence of mineralization."

Roddewig describes the "vein" in 1376-A as consisting of "mineralized granite with small stringers of sulphide. *It has considerable gouge in it*" (I, 339).

Appellee's testimony is that 1043-A raise is on the Pilot, that 1376-A is on the Black Rock fault, that between the foot of 1043-A and the top of 1376-A raise on this 1000 level the Emily comes in and is cut off by the fault, which thence proceeds westerly through the top of 1376-A raise; thereby showing that the structure in the two raises is not the same (Sales, III, 1027, 1043-5; Bateman, III, 1305-9; Barker, III, 1424-1426; Steele. IV,

1582-1583; Wiley, IV, 1699). Burch admits that a northwest gouge goes through between the two raises but does not identify it with the Emily, and doesn't know whether it is cut by the Black Rock (I, 265-6).

Appellants do not contend that the "mineralized granite" "transverse structure" "Poser type" vein goes down 1376-A raise unaccompanied. *Their witnesses admit that the Black Rock fault is also in it, and in the upward extension 1092-A raise immediately above it, constructed by appellee on the same dip* (Burch, I, 277; Roddewig, I, 453).

The trial Judge viewed this situation on the 1000 level after hearing the testimony, and he finds (V, 2242-3):

"Their line of raises from ore bodies in east-west veins near the Poser east end line plane extended, failed to connect and was abandoned. *Their midline of raises (which includes 1376-A and 1043-A) started in and along the Black Rock fault where in the nature of a footwall for the ore bodies as aforesaid, and upon and along the fault was carried to the 1000 level, and on the Poser or Pilot vein east of the Emily, to the 700 level.*"

The preceding statement shows that this finding is in accord with the great weight of testimony.

We have already stated that the Black Rock fault concededly lies along the painted course of the Poser from 1376-A raise to the west end line, and have also explained the location of the North State vein not claimed as the Poser, but immediately adjoining it.

A few other features should be noted.

The broad red vein painted as the Poser in and adjacent to the Emily vein represents nothing more nor less than the effort to appropriate and incorporate structure

of the Emily vein and associated fractures in this neighborhood on the identical theories applied by appellants on the 700 level above which we have fully discussed.

Proceeding westerly from the Emily, one of the first things to strike the eye is the curious avoidance of the strike of the Poser vein in appellants' workings. If the alleged crossing of the Emily, not visible to the mine management and miner in prelitigation days, had revealed itself to the eager eye of the litigation experts in 1922 or since, the most effective way of proving its existence would have been by driving upon it to the west end line. This was not done, but instead 1066 working was driven westerly from the prelitigation crosscut *but north of the alleged vein* and then crosscuts Nos. 1087, 1071, 1073, 1089, 1075 and 1061 were thrust out to the south groping for the vein. The result is that from the Emily westerly to 1034 drift near the west end, concededly on the Black Rock fault, a distance of about 600 *feet* the Poser vein has not been "developed" except by occasional crosscuts and it will be observed from the maps that at or near every one of these points other structures appear. In crosscut 1087, appellee's map shows a small northerly striking vein; crosscut 1063 cuts the North State vein, 8 feet wide, with quartz and sulphide prominently banded (Bateman, III, 1310); crosscuts 1073 and 1089 cut the same vein, and in appellee's exhibit other northwesterly striking structures appear at the point where the Poser is placed in 1089. At crosscuts 1075 and 1061 and in drift 1096 near the westerly end, the northwest Jessie vein comes in, and is faulted by the Black Rock and in turn faults the North State. It is through this area of the North State, the Jessie and other definite structures, with

the Black Rock fault as their constant companion and guide, that appellants have constructed their Poser vein, so-called mineralized granite without strike or definite walls so dim and obscure that miners did not see it when they crosscutted across it years ago (1913) in trying to find veins, and apparently so fragile and delicate that appellants did not venture to drift upon it for 600 feet west of the Emily. Here, as elsewhere, they "developed" their vein by "points" of alleged exposure and not by drifting upon it. It is also supported by Burch's description of the situation where 1058 drift runs southeasterly about the middle of the level, on what appellee shows to be the North State vein. Appellants concede that there is another vein encountered here and it is shown in yellow on their map. He says (I, 207):

"In the beginning of the 1058 east drift, so called, I see here that we have a drift omitted going out to the northeast—the *Poser vein is considerably confused with the northwest vein*. That is followed by the 1058 drift east, but for the purpose of distinguishing it we drove a short drift to the northeast that does not appear upon this model. *There the vein must be 12 feet wide, and very largely quartz and zinc, but how much of it is the quartz and zinc of the Poser vein, and how much of it of the vein which is crossed by the Poser at that point, I am unable to say.*"

This admission of inability to distinguish displays a frankness not exhibited elsewhere in the mine, where appellants' witnesses had no difficulty in definitely appropriating for the Poser the Emily mineralization.

There is another peculiar thing here. It will be observed that the Poser is painted right across a portion of this other vein, absorbing its mineralization, but omit-

ting much of it. When the Poser, whose walls are indefinite, marked only by a fading into fresh granite, crosses such a place as this, how is the wall determined? Why was not all of the vein in 1058 working included? Surely the south wall of the Poser across this earlier vein cannot represent a fading out into granite.

The above statement fairly reflects the testimony, especially of appellee's witnesses all of whom say that there is no such structure as the painted Poser from 1043-A raise to the west end line, that the only continuous structure followed is the Black Rock fault, which appellants concede is there, and that east of the Emily and 1043-A raise, is the Pilot vein (Sales, III, 1026-35; Bateman, III, 1285, 1305-13; Barker, III, 1422-31; Steele, IV, 1581-4; Wiley, IV, 1698-1700).

On this level as elsewhere thousands of feet of useless workings were run, thoroughly indicating the difficulties appellants were encountering. South of the broad red crossing of the Emily by the Poser are workings 1043, 1079, 1081 and 1032. Their purpose is unknown and they have no place in appellants' present scheme of things. While they were engaged in trying to drive up on the east end line plane below the 700 level, as already discussed, they were also running a network of drifts and crosscuts on this 1000 level, a veritable fishing expedition. They are shown to the south of the present Poser vein in our Diagram P, representing a section east of 1376-A raise, taken from appellants' Exhibit 14. Apparently it was once intended to paint the Poser vein or perhaps "a branch" through this country, instead of in its present location.

Raises from this 1000 level, aside from the abandoned workings at the east end are 1034-A raise, at the west end line, 1043-A raise on the Pilot, and 1075-A raise starting near the point where the North State vein is cut by the Jessie in the westerly territory. We discuss these briefly in order to see what correlation appellants make between their supposed vein on the 1000 just discussed with their vein on the 700. The 1043-A raise on the Pilot has already been fully discussed. All we have left are 1034-A and 1075-A raises in the westerly section. 1034-A is one of the west end line raises, all of which are, according to the appellee's proof, and the Court's findings, upon *one* continuous structure only, the Black Rock fault (Opinion, V, 2243). But in this, as well as some of the other west raises, there is evidence of the presence of some drag, or ends of veins cut and displaced by the fault. Sales says (III, 1033):

"1034-A raise follows the Black Rock fault. Just below the 700-foot level there is a small crosscut extending in the raise in which there is some mineralization which appears to be drag of fault. Further down near the bottom of the raise at about the twelfth floor, no, at about the seventeenth floor there is a vein more steeper than the Black Rock fault which is cut off very sharply by the Black Rock fault on the seventeenth floor. On the south side of the raise on the hanging-wall side of the Black Rock fault, just above the 1000-foot level there is some quartz manganese mineralization and can be seen plainly along the hanging-wall side of the raise."

See also Bateman (III, 1304); Barker, (III, 1430); Wiley, (IV, 1689-90).

So far as 1034-A raise and all other west end line raises below the 700 level, appellants' witnesses admitted that

the Black Rock fault is therein though they also claim that the Poser vein is followed. They testified that the Black Rock fault crossed the Poser claim into 1034 working at the west from which 1034-A raise extends.

As to the 1075-A raise, no contention was made by appellants that it follows the "Poser vein." It starts as a crosscut in country rock, encounters the North State vein, and at about the same point the Black Rock fault; above that point there are some stringers of mineralization (Sales, III, 1034). There is no vein in the upper part of the raise (Lawson, II, 898).

So, there is no connection between 1000 and 700 levels, except on the Pilot east of the Emily and the west end raise following, as appellee contends, only the Black Rock fault, which appellants concede is present therein.

1300 LEVEL.

The geological maps of the parties are reproduced on Diagram G, appendix, being P. Ex. 16, D. Ex. 103.

THE RAISES BETWEEN THE 1000 AND 1300 LEVELS.

The 1000 level is under the Poser surface. From that level appellants have come down across the plane of their south side line on three raises which were in fact constructed as a part of their scheme to start in the ore bodies and build their case. Appellee contends that appellants' connections from 1000 to 1300 and into appellee's ground have been solely on one structure, the Black Rock fault. If so, appellants have no rights whatever under appellee's surface. Appellants admit that the Black Rock fault is in each of these raises throughout. Though the argument respecting these raise connections will be

fortified by discussing conditions on the 1300 level, we deem it proper first to describe the structures upon which appellants pretend to pursue their vein extralaterally.

These raises are 1376-A, about 300 feet from the east end line, 1348-A near the middle section and 1346-A, on the west end line.

1376-A is the raise driven by appellants from a point near the bottom of the 1043-A raise from the 1000 level on the Pilot, and was the subject of full discussion in connection with the 1000 level (*ante*, pp. 167-178). All appellee's witnesses agree that the only structure in this raise is the Black Rock fault, and the court so found (V, 2242-3). Appellants' witnesses concede that the fault is in the raise but contend that their Poser vein in its mineralized granite, transverse structure habiliments is there. Appellee's position will be demonstrated when we consider conditions at the foot and east of this raise on the 1300 level.

1346-A is on the west end line, and is one of the line of raises claimed by appellee and found by the Court to be upon the Black Rock fault. Appellants make no contention that the Black Rock fault is not in this raise. Roddewig expressly admits that the fault is in the raise from 1000 down (I, 463), others admit that it is followed continuously from the foot of the raise throughout drift 1346 and from its top throughout drift 1034 (Burch, I, 263; Roddewig, I, 437; Mead, II, 632-3, 654). But they claim the Poser vein is there, also. Roddewig applies this peculiar description to it (I, 331):

"The 1346-A raise was driven from 1346 drift. It followed a vein for the *first four or five sets, approximately 30 feet*, a rather wide mineralized band

—a rather wide mineralized vein—*containing several gouges*. From that point up to approximately this small 25 cross-cut, the vein is the same character. From there upward the vein appears to be somewhat narrower, and consists of *mineralized granite* quartz and stringers of sulphide. *At frequent intervals you observe the gouge.*”

Burch says (I, 170):

“Following that raise downward, we find considerably more of the vein made up of *mineralized granite* with sparing amounts of sulphide in it, until we reach a point about five floors or, say, 30 feet above the 1300-foot level. From there downward we have fairly banded sulphide ores in the vein down to the 1300 foot level.”

It will appear from this description by appellants that the “vein” alters its appearance greatly even within the limits of this one raise. The reason is clear from Sales’ description (III, 1041).

“1346-A raise is extended upwards from 1346 drift; it follows the Black Rock fault throughout its entire length. At two or three places within this raise and along this raise there are small veins coming into the footwall side and also faulted ends of veins coming out—just a minute, just scratch that out. Along this raise there are faulted ends of veins coming into the steeper dip into the hanging-wall side of the raise, and also extending below on the foot-wall side are small veins, some of them of considerable size which have been intersected and cut off by the fault. There are a number of cases in there where this faulting very clearly shown.”

And Bateman says (III, 1325):

“A. If I may refer to the model, 1346-A raise follows a strong gouge which I again identify as the Black Rock fault; it also shows in several places

branches of ore; some of them are sliced fragments of the vein that come in; some of them stand absolutely vertical, and beyond the lower end—the lower end being abutting against the Black Rock fault; others are turning into the fault itself and some coming into it from the south or footwall side.”

The great weight of the evidence sustains the Court’s finding that this and other west end line raises are on the fault alone, as a continuous structure.

1348-A raise is in intermediate territory, and in connection with it raise 1389-A, about 50 feet to the south was run up about half way to the 1000 level, connected with 1348-A raise and abandoned or stopped. Appellee’s witnesses testify positively that both of these raises are on the Black Rock fault but on different strands, 1389-A being on the hanging-wall, 1348-A on the footwall, but that in portions of 1348-A raise the *North State* vein is found (Sales, III, 1041-2, 1248-9; Barker, III, 1436-7; Steele, IV, 1588; Wiley, IV, 1699-1700).

Appellants admit that the raise 1348-A *which they drove through to the 1000 level, is on the Black Rock fault alone, and it is painted white on their model to distinguish it from the red Poser*. Burch testifies (I, 209-10):

“Q. Will you tell the Court what raise 1348-A painted in white on the model, was driven on?

“A. *That was driven on a fault, presumably the Black Rock fault. It started, of course, in the vein and got off on a fault, and the fault turns up vertically along this yellow vein.*”

This raise was driven by appellants *as litigation work* (Burch, I, 278). It was therefore intended to connect

the "Poser" vein disclosures in 1300 and 1000 levels, but here again, miners not watched, and unattended by litigation experts got off of the vein onto the fault and *drove the raise 300 feet upon that fault*. Here is a further demonstration that the "Poser" vein is the Black Rock fault.

But if appellants disclaim 1348-A, they still cling to 1389-A *which they did not drive through to 1000 level*. 1348-A was first driven all the way through. It was one of the first litigation raises (Roddewig, 352). Appellants thereafter drove 1389-A raise, but though they *claim it to be on the vein, they stopped it half way to the 1000 level*. This is what Burch says (I, 209):

"The 1389 raise was driven with the idea of driving through the very best mineralization, and in some places it is well mineralized—in all places it is mineralized, but in some places better than others, and up at the top it appears to be *over* the better part, or *else under* the better part of the vein, *because* it is not so well mineralized."

Again, we may say with Burch that in view of the condition at its top, "it was far enough" (I, 280). From this description the "Poser" vein in places is identified by being *over* or *under* mineralization. Of course, such a description simply means that the vein is here of that "mineralized granite" form as Mead says it is (II, 582). But why was not this raise alleged to be *on* the vein carried 150 feet farther to the 1000 level as the fault was in 1348-A?

Sales describes these raises in detail (III, 1041-2):

"The next raise easterly connecting the 1300 and 700 level is 1348-A raise. This starts at its bottom from drift 1348, which follows the Black Rock fault.

The raise continues upward on the Black Rock fault to a point on the 24th floor, possibly 20 feet above the 24th floor, where the north State vein is disclosed coming into the footwall side of the fault. In the upper part of the raise from this point to the 1000 level, both the fault and the vein are more or less shown as the fault rather strikes, faults along the vein. The southerly portion of this double raise in the southerly part is called 1389-A raise. It starts from the hanging-wall branch of the Black Rock fault and follows upward on that fault to its top; the raise does not connect with the 1000 level.

“Q. Now, what is the structure of the 1348, following continuously from the 1300 to the 10?”

“A. It discloses the Black Rock fault continuously, and in the upper portion discloses also the north State vein.

“Q. The only continuous other structure through the raise is the fault? A. Yes.

“Q. And how about the 1389 to its height, as far as it is developed?

“A. The only continuous structure there is the Black Rock fault; that is, the hanging-wall part of the Black Rock fault.”

It follows that all raise connections between the 1000 level under appellants' surface and the 1300 level in appellee's ground, are concededly on the Black Rock fault throughout though appellants claim in manner above described, that in two of them appears their “mineralized granite” Poser vein without strike or dip unless the Black Rock fault is invoked to mark its course.

THE 1300 LEVEL WORKINGS.

Having shown that appellants have come down on the fault, we discuss the level workings (Diagram G). These may be divided into two sections, first that covered by appellants' unbroken red paint, and second that

delineated by dotted red at the east. Taking these in order, attention is first called to the east-west North State, along 1340 drift north of the alleged Poser vein, colored in red on appellee's exhibit. This is the same vein as that in the prelitigation drift on the 1000 level (Roddewig, I, 435; Lawson, II, 897). On these levels this vein is excluded by appellants from the Poser, but on the 700 level (716 working) it is incorporated as a very important segment of the "Poser" and the one upon which their only stope is driven.

Now, following the solid red paint of the Poser vein, appellants admit that the Black Rock fault comes in through 1378 drift at the east, shown in green on appellee's map, and in one or more strands follows the solid red Poser vein *all the way through to the west end line* (Burch, I, 262-3; Roddewig, I, 463-5). In other words, there is entire agreement that the Black Rock fault is correctly shown in green on appellee's map and appellants concede that it is in their "Poser" vein throughout. Appellee's witnesses further testify that through this territory the Poser has been constructed out of the Black Rock fault with cross-sections of the North State and Jessie veins, and segments of other intersected veins, as depicted on appellee's map, and that no Poser vein exists on the painted course (Sales, III, 1038-40; Bateman, III, 1316-20; Barker, III, 1432-5; Steele, IV, 1586-7; Wiley, IV, 1700-1).

Special note should be made of the fact that in the middle section of this level, appellants have by their brush painted two bulges of the "Poser" vein. It will be observed not only from appellee's map but from appellants'

that these are the sections where veins coursing in a northwest direction, marked the North State and Jessie veins, meet and are cut by the Black Rock fault, in the case of the Jessie there being two such displacements by different strands of the fault. Sales describes the situation as follows (III, 1040).

“The North State vein is cut off by the Black Rock fault approximately in 1394, and the North Jessie vein is cut off by the Black Rock fault; the North State vein is cut by the Jessie vein and various smaller veins and stringers are cut by the Black Rock fault. On this map as explained this morning, between the various east-west veins in this area, as well as generally throughout the district, it is very common to find a lot of unconnected or cross-over stringers just as are indicated on this map in red. In other words, the branching stringers will run from one east-west vein down to the next east-west vein and the small veins and stringers generally cut by the Black Rock fault are such small veins and stringers.”

And Bateman says (III, 1316).

“I started to mention that the Black Rock fault can be traced through here and here on this level again is an illustration of a feature that I mentioned before in connection with this big Black Rock fault, namely, its great character which kind of starts out and then cuts into a number of branches and comes out and is particularly noticeable throughout all of the levels of this mine that when the Black Rock fault is out in a country such as drift 1098 and this drift along

“Q. (Interrupting). 1378?

“A. 1378 where it is away from veins and in hard granite it usually happens to be in one big strong strand of fault gouge, but when it approaches

ground that has already been intensely rent by fissuring, such as where the North State crosses, and the Jessie and the Emily when it approaches such ground that has not only been rent by fissuring, but has also been regularly marked—has been greatly altered by the same mineralizing solutions that made the ore in the Jessie and the Emily, when it approaches those places it tended to break up into its branches, and as one follows it along from level to level, studying the fault itself as a unit in itself that becomes rather clearly evident, and that is shown in this level. Here the fault, as it approaches the particularly strong Jessie vein it is broken up.”

The fissured and mineralized features of this area through which the swelling in the Poser vein occurs were developed on cross-examination of appellants’ witness Mead. By reference to appellants’ map, his attention was directed to this section, and he said (II, 626-7):

“Q. Now, then, in the westerly portion of that area, you have the Jessie, a northwest structure, passing right across where you put your Poser vein, haven’t you? A. Yes.

“Q. And in the easterly portion you have a branch of the North State vein which comes up to and is cut off by the Black Rock fault, which comes down into this country, haven’t you?

“A. There is a vein there; I don’t know what the name of it is.

“Q. A vein which is not a part of the Poser vein that comes up from the southeast, isn’t that true?

“A. That is true.

“Q. Now, in working 1390, you have a vein going out southeasterly which is not a part of the Poser vein? A. Yes.

“Q. And in working 1382, you have a vein going out southeasterly which is not a part of the Poser vein? A. Yes

“Q. And in working 1373, you have a vein going

out to the southeast which is not a part of the Poser vein? A. That is true.

"Q. So that between these two points on the south side, you can distinguish from your own map of the 1300 level, 1, 2, 3, 4, 5, 6, 7, 8, 9,—as many as 9 or 10 northwest structures coming into that area *that you do not claim is any part of the Poser vein and in there you place this northwest transverse structure?* A. Yes, sir.

"Q. That is correct, isn't it? A. That is correct.

"Q. Then on the north side, you have a vein going out in working 13008, haven't you?

"A. A little fissure there, yes.

"Q. And a vein in 13013, which is shown with an east-west strike? A. Yes.

"Q. And a vein in 1340? A. Yes."

Of course, the Black Rock fault cuts and displaces this series of northwest veins. If there were a Poser vein here, it, also, would have been cut and displaced, but nowhere was this shown, nor is any evidence that the "Poser" cut through earlier veins except as its companion, the Black Rock fault, did so. Appellants claim that their Poser vein went right through all earlier structures without displacing them but simply appropriating their mineralization as on 500, 700 and 1000 levels. The stubs of the intersected veins are seen to come up against and be cut off by the fault. Lawson admitted this with respect to the mineralization coming through 1356 drift (North State) from the south, and said it appeared to come up to drift 1394 (Black Rock fault) and to be cut off there, "the Poser vein has *incorporated* the stub of that 1356 vein into it" (II, 882). Simply and only by a process of "incorporation" of earlier veins into the Poser, and "appropriation" thereof by it, is the Poser vein *formed* in this area. If our discussion of similar condi-

tions on the 700 and other levels, and the obvious geological conditions displayed by the various maps, has not convinced the Court of the futility of such contentions, nothing that we might add could do so.

THE EAST END OF 1300.

We are now on the last phase of the 1300 level. If prior theories of appellants have strained credulity, what they attempt here breaks it completely.

In an earlier portion of this brief devoted to the abandonment by appellants of the *east* end line raises below the 700 level due to inability to connect, we discussed the resulting shift of appellants' hold on the east portion of the 1300 *level* (ante, pp. 95-100). If the Court will follow the 1300 level maps, (Diagram G), it will find a north-south crosscut 1357, at the east end. This was an old working driven by appellants long before their first bill of particulars was filed, but their Poser vein was not placed therein by that bill. Appellee then drove 1378 drift from the foot of 1376-A raise down which the Black Rock fault had come (accompanied as appellants claim by the Poser mineralized granite vein) northeasterly to prove (1) that this fault was the same Black Rock fault as is in the Elm Orlu mine and figured in the *Elm Orlu* case (233 Fed.), and (2) to demonstrate that it was the same structure followed in 1376-A raise. Also a drift 1388 southeasterly from this 1378 working along the Emily vein demonstrates the position of the Emily here. Appellants then ran a hook out from this new working in a southwesterly direction, numbered 13006, the southerly end of which is No. 13021, though not so numbered on the

diagram. This was done shortly before trial. Then for the first time, by their amended bill served two weeks before trial, they placed their Poser vein in these 13006 and 13021 workings (I, 91), and on their map paint their vein by a wide band of red across 13021 and adjoining workings. Then by a westerly projection through undeveloped country, 200 *feet*, they tie that alleged exposure into the alleged vein at the foot of 1376-A raise (Burch I, 267). This wild projection is bad enough, but it does not compare with the utter recklessness displayed by appellants in "exposing" their "vein" in these easterly workings. The maps of both parties show a well defined northwesterly vein in three branches (marked "Emily vein" on defendant's map), proceeding right through these workings where the "Poser" vein is placed. Appellee's witnesses testify that no structure whatsoever appears here except these several branches of the Emily, and that appellants have simply taken (to use appellants' terminology "appropriated") cross-sections of the Emily for the "Poser," the Emily being in 1388, a strong fissure vein of two to eight feet of quartz, and zinc (Sales, III, 1036-7; Bateman, III, 1318-9; Barker, III, 1432-3; Steele, IV, 1585; Wiley, IV, 1701). Indeed, appellants' own maps show that yellow paint was first placed in these workings representing the *northwest* vein, and then red was painted right upon and across the yellow (Bateman, III, 1318; Steele, IV, 1585), and this was admitted (IV, 1585).

If anything were necessary to complete proof of this geological plagiarism, it is furnished by appellants' own testimony.

Burch said, in friendly direct examination, respecting 1357 crosscut that:

"We have there a series of *northwest veins*, and always there is *more or less mineralization working out into the walls of a vein*, or nearly always, sometimes there is not, and it is hard without doing some work there to be certian *whether we are in the Poser mineralization or mineralization that is incident to these northwest fractures*" (I, 211).

On cross-examination he said (I, 270):

"Q. As a mater of fact, Mr. Burch, all of the structures that you found in 13006 and 13021 *are northwest*?

"A. Yes; *that is what makes it difficult to tell just exactly where it (Poser) is.*"

Simkins says that in this area "the vein is a *wide area* of mineralized granite within which are numerous northwesterly trending structures similar to that on the 700 level as described," but that they "are not persistent" and are simply transverse structures within the vein (II, 724). But appellants' own map shows that these northwest structures *are* persistent and extend both northerly and southerly from the course assigned to the Poser. As above shown, Simkins likens this to the 700 level. We agree. On that level exactly the same sort of "appropriation" was adopted by appellants. Simkins further said that the northwest vein was not cut at all by the Poser (II, 776).

Then came Roddewig who made a complete revelation of the opportunities presented for experts to determine veins and their walls by gradual fading of transverse structure into fresh granite. Our Diagram Q is

an enlarged section of this portion of appellants' 1300 map (Ex. 16). Therein is shown, in red, the Poser vein as painted on their map. Roddewig testified that the vein was not painted wide enough, that it was 50 feet wide, and he located it as indicated on this diagram, 27 feet north of its painted boundary (II, 528). If his object was to cover all of the "transverse structure" of the northwest veins as depicted on this map, he should have widened his vein on the north to the Black Rock fault and on the south some 50 feet to cover the northwest Emily vein crossing 1357 crosscut.

Respecting this 1300 level, the Court said, after indicating the recklessness of appellants' witnesses and their apparent reliance on the Court's credulity (V, 2237):

"Lawson further testifies * * * that on the 1300 level where the Poser vein and a vein identified as of east-west age cross, the latter *penetrates* the Poser vein for some twenty feet and until cut and faulted by the Black Rock fault. And Burch, Mead and Simkins testify that on this 1300 level, the *Emily vein proceeds unbroken through the Poser vein there some sixty feet wide*. Plaintiffs' exhibits disclose this fact, though on the map but not on the model, the red colored Poser vein has been superimposed on the yellow colored Emily vein." (Italics, the Court's.)

This is but a mild statement of the astonishing assertion by appellants' witnesses respecting this level, but which was in harmony with their similar testimony respecting other levels of the mine.

At page 114 of their brief, appellants criticize the Court's reference to the superimposition of the Poser paint over the Emily paint at this point and they say that

"the error was due entirely to the erroneous assumption of the draftsman who had no first-hand geological information, and the red coloring was in no sense an afterthought, as the Court would seem to infer, but a correction made by the geologists when they noted the error in coloring in the first instance." We respectfully submit that this is one place where appellants cannot shoulder the responsibility on the draftsman. When Mr. Steele was testifying concerning this exact situation upon appellants' exhibit demonstrating that the Emily vein was first painted upon this map in yellow and that an examination of the exhibit showed that later the Poser vein was superimposed thereon by red paint, Mr. Higgins explained that that was their method of presenting this situation, and said:

"That is what the exhibit is designed to do."
(IV, 1585).

Why proceed further? The possibilities of creating transverse structure, mineralized granite veins such as attempted in this case are limited only by the length along strike of the veins which they cross.

In conclusion we ask why if this Poser vein was disclosed in these workings, appellants did not drive westerly along it to a connection with the solid red paint 200 feet to the west? Of course, it was because they knew that when they got away from the several branches of the Emily and associated fractures their "vein" would disappear. They confined themselves to exposing those portions of the Poser which were appropriating and incorporating the older mineralization.

This brings us to the question whether these workings are, as claimed by appellants, upon the dip of the same vein which in fissured, banded form, with quartz and manganese was found east of the Emily upon the 1000 level and everywhere above—the vein which the appellee says is the Pilot and which is not found below the 1000 level. On the 1000 level it was five or six feet wide and well mineralized (Sales, III, 1232). That this red painted cross-section of the northwest Emily vein and its branches, a so-called mineralized granite vein with the only evident structure running in a northwest direction, is not the same vein as the Pilot above must be true. We are 300 feet deeper than on the 1000-foot level, and a characteristic Steward-age vein should strengthen with depth (Burch, I, 144, 213; Lawson, II, 848). But here, if appellants' theories be true, nature reversed herself and on the 1300 level all that is left of the Poser (Pilot) vein, the typical fissured vein from the surface down to the 1000 level, and 7 or 8 feet wide there, is this mineralized granite "structure," without dip, without strike, without walls, except a fading into granite, created out of well defined northwest fissure veins. Further, in order to correlate the fissure vein which came down from the surface to the 1000 level on a vertical or slightly northerly dip, with the "vein" in these 1300 workings, the dip of that vein would have to be converted into one strongly to the south. From a dip of 80 degrees to the north between the 700 and 1000 levels, as claimed by appellants, it would require a change to 60 degrees to the south from 1000 to 1300 in order to reach the painted vein on the latter. This is indicated

by the middle cross-section which is included in our Diagram S.

If further proof were required, that the vein appellants claim as the Poser east of the Emily vein does not cross that vein, it is furnished by a brief review of conditions from the surface down to the 1300 level, east of the Emily. It will be observed that at the top and bottom of our several diagrams representing the levels from the surface down to and including the 1000 (Diagrams A, B, C, D, E, F,), there are figures representing co-ordinate lines indicating horizontal distance west of a fixed point used by appellants, these co-ordinate numbers being 100 feet apart. In the section east of the Emily down to the 1000 level the vein (appellee says the Pilot) is admitted by all to be a fissure vein. Even on the surface, this fissured characteristic extends to a point between co-ordinates 2000 and 2100, nearly to the middle of the Poser claim. This being true, if that vein crossed the Emily below, its fissured features should be preserved at least as far to the west, and well beyond a crossing of the Emily on the several levels, *because there is nothing in the record to indicate that the mere cutting and faulting of the Emily would alter the whole structure of the Poser.* Now, let us see what happens. On the 167 level (Diagram C) the fissure terminates east of co-ordinate 2000, or about 100 feet further to the east than on the surface. On the 500 and 700 levels the fissure terminates east of co-ordinate 1800 or some 250 feet east of its surface termination. On the 1,000 level the fissure terminates about the 1700 co-ordinate, or about 350 feet east of its termination on the surface. When we arrive at the

1,300 level we have no fissure at all in any extension of the Poser. In other words, the portion of the Poser vein east, which is of fissure type, consistently terminates when it arrives at the Emily, and as that vein dips to the northeast, the fissured section of the Poser constantly recedes to the east. Immediately west of the Emily, on the 500, 700 1,000 and 1,300 there is no fissure—only “transverse structure” and “mineralized granite.”

WEST AND EAST END LINE RAISES.

Throughout the trial and in appellants' brief special reliance was placed by them on the two lines of raises on the planes of the two end lines of the Poser claim, though those on the east end terminated at the 1000 level. An examination of appellants' model will show that they have painted in red, for their Poser vein, very imposing and continuous lines though it should be noted that on the east end these raises are almost vertical while on the west end there is a pronounced dip to the south. The reason why appellants were able to run such continuous raises is that here they had in each case a reliable structure to follow, at the west end the Black Rock fault, at the east end the Pilot vein. Throughout this brief and especially this chapter on the “Poser vein—its Structure” we have referred to these raises both in their entireties and as to sections thereof between levels, but owing to the prominence assigned them, and especially because of the structure attempted to be placed in them by assays, a short summary seems appropriate.

West End Line Raises.

Referring to these raises, the trial court found (V, 2243):

"Their (appellants') west line of raises * * * started on the 2000 level, on the State and North Badger veins some distance west of the ore bodies in them contained. These raises converged to union below the 1600 level, and thence the single raise was carried to the surface of the Poser claim. *In the raise which started on the State vein is also the Black Rock fault, and in the raise above the union aforesaid, is the said fault to the surface. In respect to this latter, the evidence is without real conflict.*"

This finding that the Black Rock fault is found continuously in these raises and that the "evidence is without real conflict" to that end, is unquestionably true. We have hereinbefore stated (*ante*, p. 75), with reference to the record, that all of appellee's witnesses testified that the one continuous structure in the raises from the surface to the bottom was that fault; that appellants' witnesses definitely admitted that the fault was in all of these raises from the 700 level down, and that while they did not admit the existence of the fault in the raises above the 700, they did not expressly deny it, they did not know, though they conceded that there were gouges in the raises, and Burch testified that the fault traversed the surface of the Poser claim from end line to end line.

It must not be understood, however, that appellee and its witnesses asserted that nothing but the fault was found in the raises. It is the only *continuous and persistent structure* without whose aid appellants could not have gone up on one structure. That is why the expression is used that the west end line raises are on the fault. There are also in certain spaces of the raises, segments of intersected veins or seams, sometimes ap-

pearing for short spaces only and at others being strike faulted by the Black Rock for some distance; also the drag ore and broken country rock in or appurtenant to the fault incident to the great shattering of the country when it was formed. The testimony of Burch to the effect that aside from recognized vein structures there are in the country a great many seams or veinlets from an inch up to 12 inches wide, which cannot be identified or correlated from level to level (I, 240-1), and which fact is not only undisputed but was so found by the court in the Elm Orlu case, must be kept in mind. This situation common to the country necessarily exists in the area traversed by the west end raises.

It was impossible in the course of the trial for witnesses to testify to every minute feature of this kind appearing in the west end line raises and it is likewise impossible to do so in this brief. But attention is called to certain important facts which have already been stated at greater length. 1034-A raise, being one of the west end line raises, extends from the 1000 to the 700 level. Sales says that this follows the Black Rock fault but just below the 700 level there is a small cross-cut in which there is some mineralization dragged into the fault. Further down there is a vein steeper than the Black Rock fault which is cut off very sharply by it and again on the south side of the raise above the 1000 level there is some quartz manganese mineralization which can be plainly seen (III, 1033).

Connecting with this 1034-A raise and extending down from the 1000 level to the 1300 level across the plane of the Poser claim's south side line is 1346-A

raise. While this also is driven upon the fault there are two or three places in it where there are small veins coming into the footwall side and also faulted ends of veins coming in with a steeper dip into the hanging-wall side of the raise; and extending below on the footwall side are small veins some of considerable size which are intersected and cut off by the fault (Sales, III, 1041). Referring to the 1346-A raise, Bateman also said that in several places it showed branches of ore, some sliced fragments of the veins coming in, some of them standing vertical and others turning into the fault itself, coming into it from the south or footwall side (III, 1325).

The same thing may be said of the west end line raises below the 1300 level, but it seems unnecessary to discuss these inasmuch as the critical workings in the mine are at and above the 1300 level being the first one extralateral to the Poser claim. If as the testimony shows and the court found there is no continuous Poser vein structure in the 1300 level and the workings above including the raises, appellants' entire case falls.

East end line raises.

These raises do not go below the 1000 level. It is admitted by all witnesses that they are driven upon a vertical vein which appellee says is the Pilot and the appellants say is the Poser. As we have explained fully hereinbefore, appellants attempt to develop their alleged Poser vein on the east end line plane below the 1000 level, but in this they miserably failed, the raises failed to connect and they were abandoned(*ante*, pp. 95-100).

5. Alleged Enrichment of Appellee's Veins by the Poser.

One of the many remarkable assertions in the opposing brief is that when the Poser vein was formed it reopened and greatly enriched the earlier veins (Appellants' Brief, pp. 16, 76, 107-8). The facts or the testimony do not confirm this statement, and it is evident that it is based entirely upon disconnected comments made by Sales in his paper of 1913 to which reference is made in the opposing brief (p. 76). Sales, appellee's chief geologist is made appellants' principal witness, and the argument is made by lifting his paper's statement from its context, minimizing portions thereof and bringing another into overshadowing relief. Therein Sales said, in substance, that because Steward fissures were so scantily mineralized that even where in direct contact with older veins for long distances *there was logical reason for doubting that any enrichment had occurred from the Steward faults, in certain instances* it was believed that such enrichment had occurred, and he cited two or three cases, and said it was not improbable that in the case of strike faulting such enriching influence might be very great (III, 1208-9).

This is the only excerpt upon which appellants rest their case for the astounding theory of the enrichment of the great veins of appellee by the Poser, and they did not attempt to show, by Sales or otherwise, the geological situation of the "certain instances" mentioned by him or that they were comparable with phenomena in the Badger mine.

The testimony, however, does not rest there, Sales,

testifying in explanation of the above statement, said (III, 1209-10):

"Yes, you might have that, but in order to draw any such conclusions as I made there, and I explained it in other parts of that paper, that there is no reason for suspecting any influence on the old vein by the fault fissure unless the fault fissure itself is shown and proved to be a mineral bearing fissure, or the solutions along it mineral solutions have passed, so that if the fissure itself is found to contain no ore in the vicinity of the crackled vein, or somewhere in the immediate vicinity, there is no reason at all for assuming that any of the ore from the neighboring vein has come from the fault fissure."

In this answer the witness stated that he had explained the same thing *in other parts of his paper*, which appellants *neither introduced nor refer to in their brief*. It was presented by appellee, and we quote this therefrom (III, 1267):

" * * * The existence of minerals indigenous to the fault fissure itself in the vicinity of the mineral mass in question, usually identical with that found filling fractures in the older vein fillings, offers satisfactory evidence of the fault influence."

On the same subject, he testified (III, 1210-11):

" * * * answering further your question as to the influence therefor on these veins if the solutions coming up along this so called, or in the fault fissure, were in such condition that they deposited ore much higher up in the older veins there would certainly be a lot of mineralization, a lot of ore bodies in your fault fissure and also much higher up than this contact. In other words, these solutions if they came along this fissure they cer-

tainly would mineralize the fissure as high up as they mineralized the veins which were intersected by them."

Appellants' witnesses likened the enriching process to a leakage from the Poser pipe line. Using this simile, the above quoted excerpts from Sales' paper and his testimony indicate that there must be something in the "pipeline" to "leak out" and this can only be determined by finding remaining in the pipeline, when apart from the enriched mass, ores native to it, and identical with those in the older vein. This is not only Sales' conclusion but is supported by the obvious necessities of the case. If after the creation of the later fissure, mineral solutions came up from the depths through it, a portion of those solutions would remain in it and where it is claimed the enrichment of the older veins occurred *above* the intersection, the same solutions would continue in part through the fracture which gave them vent.

Appellee contends, and the testimony overwhelmingly establishes, that the alleged Poser vein where it intersects appellee's veins on strike or dip, is the post-mineral Black Rock fault, and that there never was any vein material in the pipe line. The only way in which appellants' enrichment theory could be substantiated would be the production of samples of the vein material in the "Poser" vein taken from some place in it in the vicinity of, but not within, appellee's veins. That was not attempted, and we may be sure it would have been if such vein matter existed. The evidence is uncontradicted that in the lower levels, where appellants place their Poser vein along the line of the Black Rock

fault and in contact with appellee's veins, the only claimed mineralization of the Poser beyond the well-defined walls of the older veins is "mineralized granite" not comparable in any respect with the real mineralization of the pre-existing veins. These are veins of copper ore extending hundreds of feet above the claimed Poser intersection. No such mineralization extends upward in the "Poser."

No witness for appellants gave the slightest testimony that he had seen in the ground evidence of the enrichment. No one of them found or claimed to have found in the Poser vein in vicinity of its contact with the State, Jessie, Emily or other veins, minerals characteristic of those veins. All their ideas were limited to the conclusions drawn from the maps and models (Lawson, II, 854-5). Referring to these which are worthless as evidence in the absence of the indispensable criteria above mentioned, let us see what they show. That the Emily stopes are found below the alleged Poser is not only manifest but it is admitted as an "exception" (Appellants' Brief, p. 108). Why the exception? Certainly as the Poser is alleged to have cut the Emily, the opportunity for leakage there was as great as at any other place, and natural laws, if they operated at all, would enforce themselves here. The admission of an exception condemns the entire argument. But the exceptions do not cease there. On the models will be found in the lower levels, stopes upon the Jessie, the Mill and the View (the claimed Intermediate) under the Black Rock fault, where the Poser vein is said to be. Respecting the State vein, it will be observed from the models that as it proceeds westerly it takes a more

east-west course, and therefore the Black Rock (Poser) becomes a strike fault and does not cut through it at an angle. Even there it will be noticed that while drifts have been run on this vein on several levels near the west end line plane of the Poser intersection, little stoping has been done upon it. Yet this is supposed to have been greatly enriched by the Poser! In the eastern section in the area where appellants do not place their Poser vein, and from the 1600 to 2400 Badger levels are some of the best stopes in the Badger mine, upon the State and North State veins, far removed from the "enriching influence" of the Poser. On the contrary, in this area the "Poser" diverges from the older veins and strikes to the northeast. Its pipeline should be fairly intact, but no mineralization is found in it. Again, while in other places on the State vein above the intersection with the claimed Poser there are large stopes, there is not a single stope or working upon the Poser, here the Black Rock fault. It was never recognized or developed as a vein above the intersection notwithstanding it is claimed that it was the great enriching feature of this area.

One word in conclusion, why did not the leakage from the pipe line also mineralize any segments of the intersected veins on its foot-wall as fully as on the hanging-wall? Were all the holes in the pipe line confined to the hanging-wall? Clearly not, because, according to its protagonists, it was not a banded structure with gouge walls, but was constituted largely of mineralized granite. Not one word of testimony explains why this alleged enrichment was confined to the intersected veins on the hanging-wall side of the

Poser, and the fallacy of the whole conception is exposed.

(6) **The Lower Levels.**

There is much interesting testimony in the record concerning the workings below the 1300 level which corroborates appellee's contention that the Poser vein has no existence in fact. Since we believe that this has been so thoroughly demonstrated by the discussion of the 1300 level and the workings above, we will not unduly lengthen this brief by any detailed discussion thereof.

In accordance with the conditions depicted in the levels above where the claimed Poser vein came in contact with the older veins, it was very wide as painted upon appellants' exhibits. In the lower levels when the Poser vein was projected or attempted to be developed to the east of the older veins, in the language of Burch:

"In the cross-cut 1583 it looks very poor—very poor indeed—mineralized granite, but there is not much, if anything, in it." (Burch, I, 214.)

The same condition is found on the 1800 level. (Burch, I, 216.)

As pointed out by the court below, the relative age of the vein systems of Butte can be determined by what happens at the intersection of these different vein systems. Since the Poser vein was claimed to be of Steward age, if it existed in the ground, it would cut and fault Northwest and East-West veins, but where it is claimed to exist by appellants it is found to be cut and faulted by the Northwest veins in the lower levels. In A-1412 drift by the Edith May vein. (Sales, III,

1054-56; Bateman, III, 1328-29; Barker, III, 1439-40; Steele, IV, 1588-89). The same condition is found in A-2074 drift. (Sales, III, 1068-69; Bateman, III, 1329-30; Barker, III, 1439-40; Steele, IV, 1589-91.) And again in A-2233 drift the claimed Poser vein is again shown to be cut and faulted by a northwest vein, and the northwest vein is again cut and faulted by the Black Rock fault. (Sales, III, 1073-75; Bateman, III, 1331-34; Steele, IV, 1644-45.)

All of the veins and ore bodies in dispute in this Poser vein controversy are claimed by appellee to be in the State and Badger and other veins of east-west age. While the appellants admit the existence of the State and Badger and other east-west age veins in these lower levels, they contend that the Poser vein, a later vein of Steward age, became a strike fault vein along these older veins, and in its formation greatly enriched these older veins, and that the ore bodies all belong to the later vein of Steward age by reason of this merger.

It is likewise admitted that the Black Rock fault, coming down through the country, is a strike fault along these veins in these same workings.

The record shows, as hereinabove pointed out, that these very veins and ore bodies when intersected by veins of northwest age, which veins were formed prior to this alleged Steward vein, are faulted and displaced by them, and while the Black Rock fault in turn cuts and faults these northwest veins, there is not a scintilla of evidence that any Steward vein cuts and faults the northwest vein, as it would if it existed in the premises.

This condition demonstrates beyond question that

the veins and ore bodies in controversy are of east-west age, and that there is no vein of Steward age in this area.

As the court below pointed out, "intersection affords an infallible test of age, and the Poser vein failed when subjected to it." (V, 2238.)

VIII.

ASSAYS.

Evidently, early in their litigation campaign, appellants appreciated that in attempting to establish a Poser vein, made up in greatest part of Black Rock fault, slips and gouges, conjugated quartz seams, altered granite alone, and of segments of northwest and east-west veins, they had a difficult task, and prepared to bolster up their showing in a way new to the Butte district. They unquestionably appreciated that the section through which the vein was to be located had been widely fissured, with the resulting formation of veins, large and small, and with the incidental large areas of altered and mineralized granite. The prevalence of small veins, particularly of northwest structure, in this particular area, is well illustrated by a statement of Mr. Higgins, of counsel for appellants, upon the trial, when he was cross-examining Mr. Wiley (IV, 1796), as follows:

"It is so hard to find any place on these maps where you don't map a dozen little northwest stringers that we are confined in our questions to a very short distance."

In locating their vein through such an area, assays presented a promising field for creative ingenuity. By wide sampling and selective use of such samples, they evidently felt their structural deficiencies might be supplied.

A striking feature of this phase of the case in counsel's presentation is their repeated statement that practically all of the important veins of this locality had slight values in commercial metals in the upper levels, thus attempting to excuse the generally inconsequential result shown by appellants' assays for the region in which was attempted to be located the Poser vein. It is true that practically all of the veins in the Butte camp have barren portions, both in the higher and lower levels; but it is not uniformly true that these veins have not yielded commercial ore in their upper workings. The record shows that the Emily vein, right in the heart of the territory in controversy, was stoped practically to the surface and, a short distance east, yielded one of the famous ore bodies of the Butte camp. The Rainbow lode, in the ground to the east, was stoped in the higher levels and up to about the 500 level in places in the Poser claim. The Jessie vein, to the southeast, also yielded valuable ores to a level far above where the Poser vein territory showed so meager. There was a small stope on the Pilot vein, practically to the surface, in the ground in controversy, and also stoping on the North State vein in the portion which was afterwards incorporated in and claimed as a part of the Poser vein. However, practically all of these veins in their poorer portions showed what the Poser lacked, and that is abundant mineralization of quartz

and manganese within well defined walls. The conclusion which appellants attempt to draw from their allusion to the poorer portions of these other veins is that, because such recognized veins as the Rainbow, Emily, Jessie and others have practically barren portions, with mineralization no greater than that of the general country rock of Butte with all of its prevalent veinlets and seams, a presentation of assays extending in a selected line through the country showing values only comparable with that of the general country must constitute a vein.

This expedition into the field of assays was evidently planned early in the campaign, and more than a year before the suit was filed, as it was shown upon the record that very extensive assaying, for the purposes of this litigation, had been done before Burch took charge of the development work in December, 1924. (II, 946.)

It is stated in appellants' brief that this sampling was done fairly and that appellee did not attempt to dispute its accuracy. Appellee has directly challenged every phase of this assay evidence since the time it was introduced in evidence. The assays, introduced in a mass upon the record, purported to show the results of some 4,000 or 5,000 assays. The appellants' map showed assay numbers up to 8,000; and this evidence was first introduced by next to the last expert witness of appellants, and close to the end of their case. It was a work of months to digest and analyze it, and impossible to do extensive counter sampling because the time did not permit, and not until practically the beginning of the trial and, in some cases, not then,

had appellants taken a final position as to the location of their alleged vein.

We assert, and think we will demonstrate to the Court, that the sampling was selective, not representative, the presentation of the samples to the lower Court and this Court by averages arrived at by unscientific and deceptive methods, and these based upon such samples as appellants chose to select from this great number, and, on the whole, that this assay evidence, as presented, constitutes about the most deceptive, misleading and worthless evidence that could be presented to a Court.

The lower Court, after full discussion of appellee's criticism of this sampling, and its use, both in oral argument and printed brief, and, after considering the evidence as a whole, stated (V, 2241):

"Defendant criticizes the method of sampling, with some justification."

(1) **Vein Definitions.**

In appellants' brief, in justifying the presentation of this evidence, counsel give vein definitions from various authorities to the effect that structural boundaries are not necessary to constitute a vein or lode under the mining statute. This is doubtless true in certain localities where the veins are replacements in lime, quartzite and other formation different from that of the mineralized area of Butte; but even in these situations it is essential that the mineral values be sufficiently different from that of the country rock in order to distinguish the mineralized mass. This is not accomplished by the assays presented in this case.

Even in the cases of mineralized zones, which are

recognized as lodes under the well known definition of a vein in *Eureka M. Co. v. Richmond M. Co.*, 4 Sawyer, 302, 8 Fed. Cas., 4578, p. 819, and in the limestone and quartzite cases which have followed it, the definition has been limited to ore bodies "coming from the same source, impressed with the same form, and appearing to have been created by the same processes." *Eureka case*, *supra*, p. 823.

The doctrine announced in these cases is undoubtedly correct, but we submit that it has no application to the Butte district where, as undisputedly shown on this record, the veins are true fissure veins with well defined walls. The fissure has preceded and formed a channel for the vein forming solutions. In the Butte District there can be no mineralized masses without fissure structure through which the minerals were deposited.

The absurdity of a contention that by merely a line of samples extending across the country, and particularly with values less than those which show ore, a mineralized mass constituting a lode is exhibited, is clearly demonstrated by a reference to the samples and assays thereon from crosscut 1357 (IV, 1837). It is admitted in evidence that this crosscut was not upon a vein or lode, but merely an opening extending through the country rock across the general course of the veins or lodes. The values shown come from the mineralization which had permeated the country rock, and from the small veins and seams everywhere prevalent in the Butte District. If simply a line of samples across the country, like those in this crosscut (and incidentally the average crosscut values are fairly comparable with

that of the alleged Poser vein for all of the levels from the 167 to the 1300), prove the existence of a vein, then crosscuts could be run through this same country parallel to the first, undoubtedly equal values shown, and a series of north-south lodes or mineralized masses established, which concededly would be an absurdity in this district.

Another illustration is shown in the assay values of the gouge streak or portion of the Black Rock fault, which is discussed in appellants' brief, pages 96-100, and is hereinafter treated (page 266). Appellants' Exhibit 59, and Exhibit 153, offered for identification, show the average assay values of the gouge streak in the west end line raises. This gouge streak is stated by appellants and admitted to be a part of the Black Rock fault, post-mineral, and nowhere claimed to constitute a vein. Yet the average of appellants' samples of this gouge portion of the Black Rock fault in raises 1034-A, 1346-A, 1561-A raise, 1561-A winze and 2022-A raise showed:

Copper, 0.27 per cent; silver, 1.29 oz.; zinc, 2.18 per cent; lead, 0.38 per cent, or average values considerably higher than the average upon all of the levels from the 167 to the 1300 of the alleged Poser vein, and higher than the average of all raises from the 1000 foot level to the surface, on this alleged vein, as presented by appellants. (Appellants' Brief, p. 95.)

In other words, if appellants' contention be correct that samples alone are sufficient to show the existence of a vein extending across the country, then appellants' own samples from these west end line raises, taken

from what is admitted to be the gouge streaks in the Black Rock fault, not a vein, but simply a post-mineral fissure, would be sufficient to justify this Court in finding the gouge streak to be what all the evidence says it is not.

But counsel contend that these assay samples, under the authorities, establish the existence of a vein as a matter of law. The doctrine, which courts have laid down that a mineralized mass may answer the definition of a lode under the mining law, does not mean that as a matter of law a court can determine what constitutes such mineralized mass. That is a question of fact. Its existence must be proven as any other character of vein or lode. Assay evidence, together with other geological facts and circumstances attending the situation, present facts for interpretation like other facts. Evidence alone of assay values and samples extending across the country would mean nothing. They would convey little even to the miner, the engineer or the geologist without further information as to the surrounding facts and circumstances. In the present case, such materiality as the assay evidence had, if any, is for consideration as the other evidence of the existence or non-existence of appellants' alleged vein.

(2) Novel Way of Proving Vein Structure.

This method of establishing vein structure is novel in the Butte District. Here we are dealing, as we have stated, with fissure veins in granite. Neither in practical mine development nor in litigation have we known of such a resort to this class of evidence to prove the existence of a vein.

In practical mining operations the engineer and miner have developed by following the vein structure, and it is shown upon this record that the large productive veins of the camp have been brought to amazing production by following and opening up the vein structures throughout their courses. The east-west and northwest-southeast systems of veins, although in places largely barren of commercial mineralization, still furnish sufficient guides to the miners to lead them to the enriched portions. Assaying never was resorted to to determine structure, but only to determine profitable grades of the material encountered.

In litigation this method has been little used here, and practically never to determine vein structure. Occasionally, for instance, where there was a question of limits to be placed upon a vein where the mineralization has obscured the walls and extended into the country rock, assaying has proved helpful, but we have never known, and we doubt if the Court has ever known or heard of a case where the existence of a fissure vein in granite was attempted to be proven by assays.

(3) This Class of Evidence Doubtful.

In the reports we find cases where vein structure, with definite walls such as we have in Butte, is lacking, and extensive assaying has been resorted to to establish the limits of a claimed zone or mineralized mass in the body of the mountain. Even in such cases the proof has often demonstrated that it must be received with caution. The very character of the evidence, the selecting of something representative, would naturally render it of doubtful value, and beyond the difficulty

of securing a sampler impartial enough to resist the temptation to make a favorable showing for his employer, and the securing of fair and representative samples, the evidence is subject to abuse in the selection and method of presenting the samples utilized.

A pertinent comment on this class of testimony is found in the instructions to the jury in *Cheesman v. Shreeve*, 40 Fed. Rep. 787, at 797, as follows:

"You also have before you evidence respecting samples taken from these excavations for your consideration. It is remarkable that there should be such variance in the results of these samples taken, and their assay, as shown by the evidence, on the hypothesis that the men who took them were impartial and honest. With such wide differences, it would indicate that such evidence, at least in this case, is quite unsatisfactory; and it is for you to say, under all the facts and circumstances attending the taking of these samples, as to which of them is more reliable."

Especially are assays subject to distortion and deceptive use where the vein being proven by them is as elusive as the Poser. The testimony of Linforth, a mining engineer and geologist (IV, 1837), the sampler who took samples for appellee, illustrates this fully. We quote from his testimony:

"Q. You knew, or did you know, at that time where the plaintiffs placed their vein, by virtue of their Bill of Particulars, which has been furnished in connection with this litigation?

"A. When I did this sampling I had no knowledge of where the boundaries or where this vein would be, and I knew only in a most general way that it was traversed somewhere east and west-erly across this country, *but had no means of knowing where the boundaries of such a vein might be.*

I was unable to find anything in my sampling to dictate that position, and there was nothing structurally or geologically."

If this Court should pursue its investigation sufficiently to acquire a fair understanding of this assay evidence and appellants' presentation of it, we submit no citation of authorities will be necessary to demonstrate the utter unreliability of such proof.

(4) Foundation for This Branch of Appellants' Case Furnished By Counsel.

It is rather astonishing to find from this record that the foundation for the contentions advanced for this assay evidence is furnished practically entirely by counsel and not by the engineer or geologist. With the exception of Simkins we cannot find a statement from any of the geologists or engineers to the effect that the assays presented or the comparisons attempted to be drawn from them, to the discussion of which a large part of appellants' brief is devoted, mean anything. After his examination, during which appellants' assay maps were introduced in evidence, Mr. Simkins was asked the following question by Mr. Higgins and made the following answer (II, 749):

"Q. Tell the Court very briefly and generally the application you make of the showing of these graphs and samples to the problem here as to whether the Poser is a vein and is continuously traced?

"A. Briefly, it shows that *it is a well mineralized vein from top to bottom.*"

In view of the fact that the assays presented, almost in their entirety, showed nothing but fractions, and most-

ly very small fractions of percentages of copper, zinc and lead, and of ounces in silver, and outside of the veins previously developed by appellee, that not a single stopable vein or portion of a vein was indicated by these assays, and in view of the fact that a considerable portion of the record is devoted by appellants' witnesses to explanations and apologies as to why their vein, particularly in the levels above and away from the stopes and ore bodies claimed by appellee, was very weak in structure and poorly mineralized, the statement comes as a distinct shock. It can hardly be believed that such a statement would have been permitted to remain unmodified in the record if counsel or witness had appreciated just what it meant.

Aside from this statement counsel have no support from their witnesses in attempting to convince that these assays establish vein structure, or that the comparisons sought to be drawn from them, particularly with other well known veins, are justified. What witness has stated that assays taken from a selected poorly mineralized slice of another vein, as compared with assays taken from the alleged Poser vein, demonstrate anything in determining the vein character of either structure? The famous Rainbow Lode, between end lines of the Poser claim and above the 500-foot level, has furnished practically nothing in the way of ore. The structure, as shown by the appellants' apex map, has an average width of 70 feet. In all of this long stretch the mineralization is almost entirely typical vein quartz and manganese. No one would have any difficulty in recognizing or following it as a vein; yet samples taken from it in many sections would show

lower quantities of the valuable metals than could be obtained from portions of the ground where the alleged Poser is carried. No engineer has said, or would say, that this indicates the Poser to be a vein or that the Rainbow is not one; but counsel's conclusion would be that the Poser is a better vein than the Rainbow. The same may be said of other recognized veins in this locality. The Emily vein was stoped from the 500 upwards practically to the surface within the Poser claim. To the southeast the record shows that it yielded rich stopes to a length of approximately 1,000 feet, and from the Badger 1000 to the 3000 level of the Elm Orlu, yet counsel present assays taken from a crossing of the vein where it is practically barren of commercial mineralization and compare it with samples taken from their Poser vein, and argue that the vein structure of the Poser is thus demonstrated, and, beyond this, that such assays show it to be as good or a better vein than the Emily. Poor, so far as commercial metals are concerned, portions of the Jessie are selected, a vein that in the immediate neighborhood to the southeast has yielded large quantities of valuable ore. It is not strange that these comparisons are left for support entirely to assertions of counsel.

Again, what engineer or geologist in this case has said that in a country filled with veins, large and small, rich and poor, with mineralized granite within and adjacent to them, assays taken anywhere showing metal contents such as are exhibited by practically all of appellants' samples, signify anything or particularly point out vein structure? Again we are driven to the statement of counsel.

Many concrete illustrations of the futility and inapplicability of this assay evidence might be pointed out upon this record.

For instance, no assays were necessary, or, in fact, used to demonstrate the existence of the fissure vein called by appellee the Pilot in the eastern part of the Poser claim. On the other hand, what amount of assaying taken across appellants' so-called transverse structure upon the 500, 700 and other levels would convince that the structure there is east and west, or anything but what it is—a series of Northwest vein fissures?

There is no testimony in this record to even show the commercial limit of value in the various metals produced in Butte. No evidence to show what might be the limit necessary to distinguish between mineralization of significance and that of the Butte mountain generally. How can this, or any other, Court say that small values, such as shown upon this record, mean anything at all?

(5) No Attempt to Prove Intermediate Vein by Sampling.

That appellants clearly recognized that in Butte veins are identified and followed by structure and not by sampling, and clear proof of their recognition of the fact that the alleged Poser vein required something more than the ordinary method of proof applicable to the Butte District, are shown by their different methods of proof of the alleged Poser and Intermediate veins. The evidence shows the Intermediate vein to be smaller and weaker in structure, at least in the lower levels, than their Poser as appellants describe it.

In places the Intermediate or View dwindles down and becomes a narrow vein with little if any mineralization, yet appellants' geologists had no difficulty, they claim, in tracing it from its claimed apex with the Rainbow down, through fault interruptions, hundreds of feet laterally through drifts and more than a thousand feet vertically through raises, without any necessity of sampling to determine its existence. No samples were presented to prove the Intermediate vein. At the time of the final preparation of appellants' case, and upon the trial, as direct an issue as to the existence of the Intermediate vein was taken by answer as with the Poser. At the time of the preparation and filing of appellee's answer, the developments of appellants, by which they afterwards claimed to carry the Intermediate across the side of the Mill View claim and into and beneath the Poser, had not been made, and in view of the facts, then known, the appellee flatly denied the existence of any Intermediate vein as alleged. The same situation as to issue and proof confronted the appellants upon the Intermediate as upon the Poser, but, strange to say, appellants had not anticipated any difficulty in proving their Intermediate structure, without resort to assays.

(6) Appellants' Plan of Sampling.

At the time Burch took charge of the development work of appellants in December, 1924, according to his testimony, he found there had been extensive sampling done for the purposes of this suit, but it had been what he called selective sampling; that is, sulphide streaks had been picked out in various places at irregular intervals and samples taken of them without

taking the general mass of the vein matter. This, he says, was obviously very unfair and made a very much higher appearance than the vein justified. (II, 946-7).

Under the new plan of sampling the Poser vein was sampled down to about the 2,000-foot level; below that no sampling was done because of the fact that the workings themselves showed that the ore and veins were there. This new plan of sampling consisted of taking samples in the drifts across the back or tops of the drifts at five-foot intervals at first, and later at 10-foot intervals—the crosscuts in five-foot sections taken continuously along the sides of the crosscuts. Where the vein was wider than the drift, full width of the drift was sampled. Raises were sampled in each set across the raise. (Simkins, II, 736-7; Landrum, II, 789, 790, 795.)

Neither the original method, which was discarded after Burch came upon the ground, nor the method thereafter adopted, as last above described, which was used in taking the great majority of the samples proven, was the regular mine method of sampling followed in all of the important mining operations in Butte. This standard method of sampling in Butte consists of taking separately, ore streaks, gouge, mineralized granite or waste, or other material in the working sampled, and showing the assay result of each character of material separately. That is what Burch calls sectional sampling (Burch, II, 951; Landrum, II, 803; Simkins, II, 810; Linforth, IV, 1835).

No good reason is offered upon this record why the regular method of mine sampling was not followed for the purpose of this litigation. It is plain that this

method of determination of the contents of the alleged structure is the only method which would have afforded the Court any aid in determining whether or not the alleged Poser structure is or is not a vein, or as to which of the parties is correct in its geological position in regard to this alleged vein.

Burch said that he discarded the system of sampling which was being followed when he took charge, because of its palpable unfairness to the appellee in showing higher values than the conditions justified. However, the appellants at least started in and continued for some time upon a line of proof unfair and unjustified. But, however much we dislike to question Burch's testimony or his stated motive for discarding this method of sampling, an understanding of the situation suggests a very strong suspicion that an entirely different motive actuated him and appellants in changing their system of sampling. Under the so-called selective system first adopted, the assayers took the veins and streaks showing along the veins and workings, taking them at irregular intervals. The taking of them at irregular intervals was unavoidable, because that is how they appear. Such system would at least have disclosed something as to structure along the sampling line. Thus, this method of sampling, which would undoubtedly also disclose the much lower mineral contents of the portions of the workings showing the alleged Poser vein alone, and containing nothing but altered granite, Black Rock fault, etc., might have tended to convince the Court that appellee had correctly determined the geology of this portion of the ground, or at least that appellants' geology was unsound.

On the other hand, by taking samples by the average or composite method finally adopted by appellants, which consisted of sampling the drift across the back or tops, the Court is simply advised of the average mineral content of the drifts, as sampled, and the inference would be either that the values shown ran evenly across its width, as indicated by this sampling, or at least the Court would be left in the dark as to whether it was made up of one or more small streaks, and the balance altered granite, or as to what was the composition of the material sampled. By taking average samples across the drifts and raises, and then averaging them for the lengths of the raises and drifts and levels, a composite picture was presented of average mineral contents for the lengths and width of the workings without any indication of the structure there contained, or what any particular portion of it ran.

An illustration of how deceptive this composite sampling, and the presentation of it by averages along the workings might be, may be given. If a drift 400 feet long is being sampled at 10-foot intervals, as the later sampling of appellants was done, and 39 of the samples, or 390 feet, average 1-10 of a per cent in copper, a showing of five per cent in the fortieth sample would raise the entire average to slightly over .22% copper, which significantly is more copper, as we shall hereafter show, than the average of all of appellants' samples for its alleged Poser vein upon all of the levels from the 167 level to and inclusive of the 1300. This not only illustrates the worthlessness of this class of evidence, but also demonstrates how inconsequential the amounts of

metal shown in the great bulk of appellants' assays along this Poser vein really are. With the number of strike and cross veins, large and small, and drag at other places, it can be readily seen that in almost any considerable working there would be no doubt about securing not one, but several, line samples across the back, which would show substantial percentages of the commercial metals.

A concrete example of this may be pointed out from the record. In drift 20 on the Poser tunnel level appellants' assay data (Appellants' Exhibit 59), show nine samples, the assays of which gave the average result following:

	% Copper	Oz. Silver	% Zinc	% Lead
Drift 20 (9 samples average):	0.12	0.15	0.34	0.12
One of the samples (No. 2220) ran	0.10	1.5	3.5	Trace

Every other sample of the nine, except this one, showed only traces of silver and zinc; still this one sample brought the average in silver up to 0.15 oz., and zinc to 0.34%.

On the other hand, if any method of general sampling was proper or helpful in determining whether the alleged Poser vein was a fissure with structure common to the Butte District, or whether it was made up of a conglomeration of seams, gouges, Black Rock fault, conjugated streaks, crossing independent Northwest fissures and segments of the East-West veins, as claimed by the appellee, it would be the regular sectional system followed in the Butte mines. As an illustration of this we might cite the condition at the bottom of 11-A raise, where appellee's witnesses found a small vein which continued

up the raise and no other vein structure. (Sales, II, 998; Barker, III, 1402; Bateman, III, 1287). Appellants' level map, (Ex. 6), shows a vein of at least eight feet in width there. Presumably the mineral content of the small vein would be higher than that of the surrounding rock. Appellants' composite assay method would show simply an assay result of the average metal contents across the eight feet sampled, including the small vein. On the other hand, if the alleged Poser at this place had been sampled by the regular mine method, the Court would have been apprised of the mineral content of the altered or other country rock within this eight feet of width, and separately of the content of the small vein. If desired, appellants could have readily consolidated the assay results, and found the average contents of the vein, if it was desirable to present that also; but by the regular mine method the Court would have been in a position, if assays were determinative of this at all, to decide whether the appellee's claim that the small vein was all of the structure at the bottom of the raise, or the claim of appellants that the whole eight feet were on a mineralized vein, was correct.

By the regular mine method the Court would have had before it the assay content of every separate vein or structure, whether crossing or diagonal to or included in appellants' alleged Poser vein, as well as the altered granite and other claimed constituents of that vein, and thus could have determined, if assays would be helpful at all in determining structure, just what constituted the alleged Poser vein, and whether it answered the legal definition of a vein or not.

The composite method of sampling finally followed by

appellants was certainly the most objectionable and unfair method that could have been adopted.

(7) **Contradiction and Confusion as to How Sampling Was Really Done.**

However, it seems probable from the record that in the samples submitted in evidence there are at least some which were taken under the original method which Burch characterized as decidedly unfair to the appellee. The witness Landrum testifies that practically all of the original sampling work was gone over by him, but does not claim that it all was, and at least it is a fair presumption that some of these samples found their way into the court records.

The only workings about which particular inquiry was made of appellants' witnesses who proved the sampling, was in connection with drifts 740 and 726, which the Court will recall were drifts in which the peculiar transverse structure of Lawson and Mead is disclosed, and which present vital points in the determination of this case.

Simkins, who presented the assay maps, testified (II, 750) as follows:

"Q. Do you know whether or not in sampling the structure in 726 and 740 that your sampler took his samples along the wall in places in that drift?

"A. He took them across the vein north and south."

Landrum, who testifies that he did all of the final sampling except for a period of about six weeks, testified (II, 795-6) as follows

"Q. How about these drifts 726 and 740?

"A. Sampled across the back.

"Q. Across the back?

"A. Yes.

"Q. Now, when you were sampling across the back of these drifts the structure was running northwest and southeast, was it not? The vein matter that you saw in there?

"A. Running with the drift. The way it was driven, that I remember."

Burch, (II,946), testified that he had directed the taking of channel samples along the wall of 740 drift, instead of samples across the back, and that samples across the back would not represent "as fair a sample," and said that he had seen the sample channels along that drift.

Putnam, another sampler, testified that the samples in 740 drift were taken along the sides, and that these were the samples on the graph in evidence (II, 942-4). Putnam also testified that drift 726 had never been resampled since the original unfair streak sampling (II, 942-943).

Thus, as to two probably as important workings as are involved in this case, we find a direct conflict in appellants' evidence as to how they were sampled. Simkins and Landrum, the sampler, testified that 726 and 740 drifts were sampled across the backs; Burch and Putnam that 740 was sampled along the side; and Putnam showed clearly that 726 had not been resampled, but that the original samples were merely checked by the sampling of 740, a different working—a rather novel way of checking samples in another portion of the vein.

As the only specific inquiry as to how samples were taken, resulted in a direct contradiction between appellants' witnesses, and leaves the matter in hopeless confusion, what credence can be placed in the integrity of the sampling and assay results of appellants as a whole?

It is also apparent that neither the sampling across the back at close intervals, which might have resulted in samples being taken directly along more or less of the Northwest seams, or a sample taken along the side, which would merely give the Court the average result of the lengths taken in this drift, would throw any light on the structures through these drifts which appellants seek to weld into an important link in their alleged Poser vein. If samples had been taken along these drifts in the ordinary mine method, thus showing the Court what each Northwest fissure ran and what the material between them was, assay results, if assays mean anything at all, might have been presented which would have been of aid to the court.

(8) Appellants' Evidence as to Sampling Contradicted by Their Own Record.

In the above discussion we have assumed that the sampling was done, and samples put upon the record, as testified to by appellants' witnesses. In checking up the involved discussion of these samples found in appellants' brief, we are astounded to find that this description of appellants' sampling and the introduction of the same in evidence do not accord with the facts. This is plainly demonstrated not alone by appellants' assay maps and graphs, Exhibits 59-80, but by the diagrams found in appellants' brief. Simkins, who furnished the qualifying evidence for the introduction of these assays and assay maps, testified (II, 735-6) as follows:

"A. The Poser vein has been sampled almost continuously throughout all of its exposures by assaying of the various levels, that is, drifts, cross-cuts, where they exposed the vein and raises. These

exposures have been sampled at regular intervals. In the beginning of the work some of the samples were taken at five-foot intervals, when that was abandoned, and a later sampling was done at 10-foot intervals. *That has been carried throughout, I think, all of the exposures of the Poser vein in the upper levels.* These assays were obtained from the samples and graphs were made, that is, graphic representations of the values obtained from the assays, and these have been traced upon these maps, both plan and section. In the sections there are three shown. These show the workings mostly on the raises, that is the only raises which are driven are on these three sections except possibly one or two small raises. The amounts as indicated——”

This testimony can only mean, and was intended to mean, that all of the exposures of the Poser vein in the upper levels, and by upper levels Simkins meant levels above the 2000 (II, 736), were sampled at regular intervals of, first, five feet, and then 10 feet, the samples assayed, and the assays put on the maps and graphs introduced in evidence. If these samples only covered portions of the workings claimed to be upon the Poser vein upon these levels or all of the assay results of the samples so taken within the Poser vein were not presented in evidence, this introductory evidence gave an entirely erroneous impression.

Appellants' assay maps show that the sampling was not done at regular intervals; that in some cases, one of which may be mentioned as drift 740 on the 700 Poser level, a double line of samples, one on each side of the drift, was taken, and portions of some workings, drifts, crosscuts and raises alleged to be upon the Poser vein not sampled at all, or at least samples not put in evidence.

Without discussing in detail the workings or portions of

workings not sampled, or on which the samples were not presented, as one glaring instance thereof, we simply call attention to the fact that in drift 726, run upon the transverse structure of Mead and Lawson, and which was such a vital point in this case, and about which there has been so much contradictory evidence as to how it was sampled, not a single assay result was shown. Even a cursory examination of appellants' assay maps(Appellants' Exhibit 59) is sufficient to demonstrate beyond any doubt that after all of the protestations of Burch and counsel as to the fairness and thoroughness of the sampling and assay results presented, it is clear upon this record that the sampling was not representative but flagrantly and deliberately selective.

In appellants' brief, the comparison of the assay results, one working with the other, is not made by clearly stating in the text the results, but instead by giving multiples of the figures compared and reference to the graphs in the separate appendix. It undoubtedly appeared to be much more impressive to state that the Poser vein contained twice as much copper in 1034-A raise than the Pilot vein 1043-A raise, but, when the inconsequential amounts in each is noted, 0.26 per cent in one and 0.12 in the other, the comparison is deprived of its effect.

(9) Assays and Their Presentation Selective and Inaccurate.

Assay proof, not alone renders itself readily to misuse through adoption of improper methods, or the unfair carrying out of proper methods, but may also be a most uncertain means of proof because of the method used in selecting and presenting the assay results. If the inten-

tion is to aid, and not mislead the Court, the greatest of care must be exercised in selecting assays for purposes of demonstrating values in the ground assayed or for comparison of values there found with other structure, and we submit this record and the brief of counsel for appellants clearly disclose that an opposite course was pursued.

Appellants' assays were put in the record by means of large maps, 18 in number, Appellants' Exhibits 60 to 77, and three cross-sections, Appellants' Exhibits 78 to 80, and Ex. 59, consisting of a large number of small blue-prints. The assays purport to show the results of some 4,000 to 5,000 samples. The assay maps of appellants show numbers up to 8,000. Counsel's presentation of these assays is by means of averages computed entirely out of court, and not shown upon the record, of claimed average results in various lengths selected from the many drifts, crosscuts, raises and winzes shown upon the maps, some of the samples coming from as far down as the 2,000-foot level, and from end line to end line of the Poser claim.

Comparisons of raises at one end of the claim with raises at the other, of drifts upon one level with drifts hundreds of feet below, of drifts with raises, of selected portions of one vein with those of another separated by greater or less distances, can mean little, if anything. In view of the enormous number of samples, and the complicated geological conditions presented in the various workings, it is impractical to go through all of counsel's assertions and comparisons in this brief. In addition, it would be futile to attempt to check all of these matters, as it would be an utter impossibility for the Court to take the time necessary to examine this tremendous mass of

material upon the record, and determine the conflicts.

We shall only endeavor to answer appellants' brief sufficiently to demonstrate that in the selection of the material used for the comparisons and in the comparisons themselves, and in the statement of facts and figures presenting them, appellants have been at best decidedly careless.

A significant comment upon the worthlessness of appellants' assay evidence, for purposes of comparison or otherwise, is furnished by appellants themselves.

Upon the 1300-foot level, appellants' plan map, Exhibit 16, the Poser vein is shown to be as a rule much wider than the drifts claimed to be on the vein across this level. At intervals from the westerly portion to the east, short crosscuts were shown extending out beyond the extreme limits of the Poser vein. In order to demonstrate that there was no justification for so locating the vein, and that the country rock in the crosscuts was as highly mineralized as the adjoining portions of the vein within the vein boundaries, as appellants fixed them, Linforth, for appellee, had taken a number of samples from these crosscuts and presented them in evidence. (Exs. 138, 139, 140, 141). The samples were taken through the crosscuts from the sides of the drifts, showing separately the metal contents in the portion of the vein in the crosscuts, and in the country rock outside. In rebuttal (Rodewig, V, 2074-5), this sampling of Linforth's was severely criticized because it was claimed that by merely assaying the portion of the alleged Poser vein in the crosscut he had shown only the poorer part of the vein, and that it was unfair to compare this poorly mineralized portion of the vein with the country rock outside. Rod-

dewig (V. 2075) testified in connection with this cross-cut assaying of Linforth's, that the strongest and richest portion of the Poser vein lay in the drifts. The assay maps of appellants show that in sampling for the purpose of showing the contents of the Poser vein on this level, only the drifts and connecting crosscuts were sampled, and no samples were taken of the poorer portion of the vein towards what counsel called the "edge" of the vein in these crosscuts. The samples presented to this Court as showing the contents of the Poser vein upon this level, and the assays used for establishing this, and for the purposes of comparison with other veins, therefore only represent the better part of the Poser vein. The exhibits show that the vein was claimed in most places to be from two to five times as wide as the drifts upon this level, and therefore we find appellants presenting to the Court as representative of the metals found in the Poser vein on this level, merely samples taken from the better portion of the vein, comprising only one-half to one-fifth of its alleged width.

It will be noted in 728-A raise that the vein has a width of 30 feet. The samples show only the raise which is along the footwall side. Certainly average assays from five to six feet of a 30-foot vein are not representative of the vein.

Practically the same showing might be made as to appellants' samples of their alleged vein on the other levels of the mine for, while there is no direct statement that the drifts on these other levels were on the best part of the vein, it is plainly shown by Roddewig's and counsel's statements that the mineralization generally became poorer as you approached the outer boundaries or

"edges," as counsel call them, of the vein. Whether the sampled portion is better or poorer than that not sampled, it is certain that appellants have presented, and are urging as representative of the Poser vein, samples which show only a small portion of its width.

Remembering the negligible quantities of minerals shown in the samples taken from the best part of the vein on the various levels, and considering that if these be reduced to an average including the much larger and poorer portions not sampled, appellants would have still greater difficulty in presenting assay results which would compare with anything but the most barren country rock in this vicinity.

In connection with workings, particularly in raise and winze sampling, where it was desired to make a poor showing as to metal contents, appellants pursued exactly the opposite course. Instead of confining their samples to the vein structure and mineralization described by appellee, or otherwise shown upon the record, they take much greater widths, thus reducing the average metal content. Instances of this are shown in 1561-B winze (appellants' diagram 16), where, in the lower part of the winze, the width of the vein or ore streak was an average of but six inches, but samples were taken for a width of more than six feet, thus reducing the metal contents to possibly one-twelfth of what it should have been; also in 570-A raise, in what the appellee calls the Pilot vein, where only a branch or portion of the Pilot vein is shown, but samples were taken for the full width of the raise or an average of more than five feet.

In 17-B raise appellants describe their vein as being wider than the raise, but in sampling they present samples

of the raise through a width of $5\frac{1}{2}$ feet in the lower part, and cover but two feet in width in the upper.

We submit that even a casual reading of the geological discussion, both in this and appellants' brief, will show the utter lack of probative value of assay results presented by averages over extensive workings. Raises starting on one of the older ore bodies, going through country where there is practically nothing but fault, with more or less drag, and then encountering other veins, are presented by averages, picturing to the Court the contents of the entire raise or system of raises as being uniform; whereas, the assays themselves show long barren stretches and, in fact, corroborate, as far as assays can, the geology outlined by appellee's witnesses. The same is true on the levels. There is no question but that on practically every level in the mine there are veins and veinlets, recognized and developed years before the idea of a Poser vein was conceived, which would furnish assay values greater than that in the ordinary country rock, and at least equal to the averages presented by appellants.

In the brief filed in the lower Court appellants presented their assay results by averages in the same manner, but to much greater extent than in the brief before this Court. Appellee was utterly unable to determine from appellants' assays upon the record how such averages could be reached. Shortly before the oral argument below we were given the most astounding information by appellants' counsel that these averages had all been made up by taking all of the samples in a drift or working, or a number of workings, and averaging them arithmetically, making allowance only for the width of the opening. It will be readily apparent to the Court

that a more objectionable, unjustified and unscientific method could not possibly have been conceived. In other words, where a working or vein was sampled, compensation was made for width only of the sampling, but as to length of working which the sample represented, no distinction was made, whether one sample was taken in fifty feet and five in the next twenty-five feet—an average was given of the six samples. In fact one sample for fifty feet represented fifty feet of that vein in width for the opening on the vein; five samples represented the other twenty-five feet. By appellants' method, if a working on the vein five feet wide were sampled, and one assay was taken in the first fifty feet which ran one per cent, and five in the next twenty-five feet which ran two per cent, the appellants would present the same to this court as showing the entire seventy-five feet of the vein as running $1\frac{5}{6}$ per cent, when, by the correct method of determination, it would show $1\frac{1}{3}$ per cent. By this method of making averages, which is that used in the appellants' brief before this Court, as well as before the lower Court, where more frequent samples were taken in the richer portion of a vein, the apparent value of the whole vein would be largely increased, and if more frequent samples were taken in the poorer portion, the reverse would be the result. Appellants profit by this method of presenting averages in both ways upon this record. The assay maps, and even the level diagrams in appellants' brief, will show that west of the Emily vein, where they are trying to show a better mineralization than the admitted Pilot vein to the east, the samples were not taken at regular intervals; whereas, on the Pilot vein, in the easterly part, they were taken at ten-

foot intervals. It even appears that nineteen samples, in 42 feet of a crosscut at the east end, which represented only five feet in length of the vein, were included and used in the same manner as though they were additional drift samples representing each a ten-foot length of the vein.

Palpably the proper, and the only justified, way of making averages of vein contents from assays would have been to have allowed for the area of the vein represented by the sample; that is, by adjusting them to widths and lengths, and thus determining the average assays of the area sampled. In other words, where there was one sample in fifty feet, that sample represented fifty feet of the vein in length, and each of the samples for five feet represented five feet in length. It is incredible that appellants would present evidence to this Court upon such a basis. The use of this method alone is sufficient to discredit and render worthless practically all of the assay contentions presented by appellants to this Court.

(10) Findings of Lower Court Render Assay Evidence Immaterial Upon Appeal.

The findings of the lower Court upon the facts, in at least two ways, render it unnecessary to give this assay evidence further consideration when the general geological situation is understood, and render all of such assay evidence immaterial upon this appeal.

1. The lower court heard all of the evidence which consisted, not as counsel state in their brief of assertion of opinion by one set of witnesses that the Poser constituted a vein, and by the opposing witnesses to the con-

trary, but was made up of close detailed descriptions of all the geological structure and facts, history of development and every other detail that would enable the Court to judge of the correctness of the witnesses' conclusions. In support of the testimony maps, cross-sections, models and illustrations of almost every conceivable character, including even, in a number of cases, the original geological notes of the witnesses taken underground, were introduced. After hearing all of the testimony the Court made an extensive view of the surface and underground workings involved. After full briefs and oral argument and an extended study of the record, the Court found that appellee's witnesses had correctly described the geological conditions in the ground, and that appellants' contentions were untenable. Under this situation, how could it be possible that this assay evidence, even with its infirmities and its manner of presentation forgotten, could have more than slight, if any, weight in the determination of whether the alleged Poser constitutes a vein west of the Emily vein, or that the Pilot vein did not connect with or apex any of the ore bodies in controversy.

For instance, the North State vein is plainly developed on the 1300-foot level in drift 1340 of the Elm Orlu, on the 1000-foot level in 1058 drift run by the appellants and their predecessors, and in drift 716 and the lower part of raise 716-A on the 7th level. This is the vein upon which, as far back as 1913, the appellants, or their predecessors, sank a winze 90 feet from 1058 drift. (See testimony Harper, II, 936-7). Appellants merely incorporated an upper slice of this vein, that on the 7th level in a part of 716 drift in their alleged Poser vein, but did not claim 1058 and 1340 drifts to be on the vein

because it went down vertically from that point and would not carry them southerly into appellee's ground and a connection with the coveted ore bodies. The undisputed geological testimony, with the illustrating maps and the models of both parties, could lead to no other conclusion than that which the Court found, and that was that this constituted a separate and distinct vein known as the North State, a portion of which, conveniently located on the 700 level, had been attempted to be incorporated into the alleged Poser vein. With this plain geological showing before him, what possible weight would assays from the portion of the Poser vein upon the 7th level, which incorporated this North State vein, have? The vein was plainly there; if the assays were poor, which they were not, they would simply indicate that this was a poorly mineralized portion of this North State vein, and if good, which they were, as shown by appellants' presentation of these assays on the 7th level, it would be corroborative of the presence of the vein, which plainly extended upward to this point from the 1300 level.

Certainly the lower Court would have been justified in going further and saying that the assay evidence, under the circumstances, was entitled to no consideration, and this Court, after an understanding of the immense amount and convincing character of the geological evidence upon which the lower Court based its findings, cannot say that an entire disregard of the assay evidence of appellants would not have been justified, and that, in view of the overwhelming geological evidence supporting, together with the presumptions attaching to the findings of the lower Court, the assay evidence could possibly justify a reversal of these findings.

2. From another viewpoint the findings of the lower Court render entirely unconvincing and immaterial this assay evidence. The lower Court, as above stated, after hearing all of the voluminous evidence and viewing the premises as above described, and carefully considering the entire record, found the geological position of appellee's witnesses to be the more convincing, and that the alleged Poser vein west of the Emily and outside of the admitted Pilot in the eastern part of the claim, to have been made up of older veins, large and small, and in the transverse structure immediately west of the Emily, consisting mainly of a series of Northwest veins parallel to and incidental to the Emily fissure and forming portions of Northwest structure and not of the Poser. In other words, after all of this consideration the Court found to be present in the ground the veins and structures as described by appellee's witnesses, the Pilot vein, the Emily vein, the North State vein, the Jessie vein, the 352 vein and the State, Badger, North State and other veins large and small in the various workings. These mineralized structures were found to be in the ground. This being so, there would be no difficulty in taking an East-West segment through any portion of this ground and getting assays, large or small, wherever these structures were encountered. In addition there was the Black Rock Fault, with drag in the gouge and crushed portions of the fault. These other structures, which the Court found to exist, readily account for the assays, and particularly so if averaged and presented for lengths which would include the older structure, as well as that in the region claimed as the Poser, in which no structure was found.

Surely the overwhelming evidence upon this record,

together with the Court's view of the premises, amply support the findings of the Court below, establishing the existence of these older veins and ore bodies, and, under such a finding, the sources of the assays presented by appellants being shown, what reasonable contention can be made that they establish the existence of another later vein through this region.

(11) Discussion of Appellants' Assays.

Counsel in their brief have selected a very few of the workings involved in the presentation of the assay evidence. Such assays as are used are presented to accomplish two purposes, first, to show by comparison of assays between selected portions of the alleged Poser vein, with carefully chosen, poorly mineralized portions or crossings of older recognized veins, the Pilot and Emily in this area, that the Poser is a vein in many instances stronger than the Pilot or Emily; second, to convince the Court that assay values shown in certain portions of the region assigned to the Poser vein must have come from such vein, and not from drag or other content of the Black Rock fault. The illustrations used in the brief are not typical, but evidently chosen as the most favorable to be found upon the record.

In connection with the claimed showing that as good or higher values were obtained where no drag or mineralization from older veins was brought in by the fault, it is repeatedly stated that the appellee's maps and illustrations do not show drag or other outside mineralization in such places. As this record shows, it was not practicable to show upon the maps all of the drag or mineralization carried from the older veins or ore bodies by

the fault movement. On the scale of these maps it is impossible to delineate all of the drag, but its presence in good grade, though in quantities too small to map, would undoubtedly largely increase the averages given for these assays. In addition, it was impossible, in some instances, and particularly in the raises following the fault, for appellee's witnesses to see all of the drag. For instance, these raises in some cases are narrower than the fault, and portions of the fault pass outside the raises. They were in many instances timbered or lagged before appellee's witnesses could see them, and, because of the crushed up material, clay or gouge, and with water going down the raises, in a short time the sets became covered with mud, and, unless seen immediately after the raise was constructed, or the sets were completely washed, the showing upon the sides or ends underneath would in places be obscured. However, the maps invariably show veins which on their noted courses would penetrate these raises and account for higher mineralization.

We shall take up the workings discussed by counsel in connection with the assays, and also present some additional comparisons, not with the idea that the evidence is material or helpful, but to demonstrate that appellants' comparisons and deductions are not justified, and that if the assays demonstrate anything it is the exact opposite of what is claimed.

A remarkable feature of appellants' presentation of this assay evidence is the meager and selective manner in which it is done. With workings from the surface down through levels to more than 2000 feet, three lines of raises covering a horizontal distance of some 700 or 800 feet, and with a mass of assay evidence which it

would be impossible for the Court to even examine, let alone digest, they present specific evidence of sampling outside of the admitted Pilot vein on one line of raises at the west end, and on one level, the 700. The Court is asked to take these selected samples as typical. Instead of being typical, it is plain upon this record that appellants have carefully refrained from specifically going into the showing in the other veins and levels, and have selected the one example of each which affords the best possible showing, and one much better than could be given from any other level or line of section in the premises in controversy. The line of raises below the Pilot 1000, which was run in an effort to show continuity from the ore bodies below to the Pilot vein, and thence to the surface, was equally as important in establishing appellants' case as the west end line raises. In the middle line of raises which is the most easterly line of raises used by appellants on the trial (they having abandoned those lying further easterly) we find 1376-A raise, which is claimed to connect with the Pilot vein at the bottom of 1043-A raise. Let us look at 1376-A raise, one of the most important in this controversy, and at the same elevation as 1346-A, and see if the 1346-A raise, selected and presented by appellants in their brief, is typical. Appellants' assays, exhibit 59, of 1346-A raise show:

Copper, 0.26 per cent; silver, 0.47 oz.; zinc, 2.23 per cent; lead, 0.64 per cent.

Appellants' average assays of 1376-A raise, exhibit 59, show:

Copper, 0.19 per cent; silver, 0.08 oz.; zinc, 0.44 per cent; lead, 0.12 per cent.

In other words, the raise selected and tendered as typical by appellants showed more copper, almost six times as much silver and more than five times as much zinc as the important and critical raise not mentioned.

For levels counsel select the 700. This is not typical, as west of the Pilot and the Emily on this 700 level we find they are able to present samples taken from the North State vein, found to be there by the Court, and thus raise their average of this region for comparison with the Pilot to the East. Out of approximately 710 feet of the region where the Poser vein is claimed to exist on the 7th level west of the Emily vein, 430 feet are on this North State vein and 175 feet of this on the portion of the vein that had possessed sufficient values to justify its stopping years ago.

(12) East and West End Raises Above the 1000-Foot Level.

Appellants in their brief (pp. 84-89) attempt to compare the assay showing in what is called the west end line raises above the 1000 level,—the 1034-A raise, 747-A raise, 581-A raise and 351-A raise, with raises 1043-A, 726-A, 570-A and 310-A raise upon the Pilot vein in the east end of the claim. Their brief contains the statement that all of the appellee's witnesses insisted that that portion of what they claim to be the Poser vein east of the Emily and above the 1000 level was the Pilot vein, and that appellee's witnesses all testified that this was a typical vein and well mineralized.

It is true that appellee's witnesses agreed that east of the Emily the appellants had incorporated as a part of their Poser vein a well known vein called the Pilot; that the Pilot was a typical fissure vein and well min-

eralized. The mineralization in but one place, where there had been a small stope, was claimed to be of commercial value, but the vein had been subjected to the mineralizing solutions and, in the places where the commercial metals had not reached sufficient value to constitute ore, the vein had quartz and manganese and other common vein minerals. Appellee's witnesses did not state that the Poser vein, as described by appellants' witnesses, coincided with the Pilot vein. The Poser, by means largely of red paint, was made much larger than the Pilot vein, and appellants' assays were taken in a way not representative of the Pilot vein, as described by appellee's witnesses. Therefore, the standard which they take for comparison is not the Pilot from appellee's description, but a standard which appellants themselves created.

After selecting the Pilot vein for the purpose of this comparison with the showing in the west end line raises, appellants promptly proceed to belittle their standard. A reference to appellee's exhibit 129, which is claimed to be reproduced as Diagram 15 in appellants' appendix, shows that 570-A raise leaves the main part of the Pilot vein about one-third of the distance from the bottom of the raise, and follows upwards a small streak which turns southerly and does not appear in the upper one-third portion of the raise, that portion being really a diagonal crosscut, crossing to the bottom of 310-A raise. This is not alone shown on the map, but the evidence of Burch (I, 194), shows that in running this raise upward it was found that it was not on the main portion of the vein, and two crosscuts were driven out of the 570-A raise to the

south encountering the downward continuation of the stronger branch running downward from 310-A raise. Another raise, which Burch called 570-B raise, was then being constructed to follow this branch of the Pilot vein to the main vein at the bottom of 310-A raise. Burch expressly stated (I, 193-4) that this south branch is much better mineralized than the connection from one wall to another in this 570-A raise.

The appellee's exhibit 129, and it is in accord with Burch's description of this branch of the Pilot vein in 570-A raise, shows that this Pilot branch, which is used as a standard in this raise, has an average width of 1.21 feet. Appellants' samples, as shown by their assay evidence (Appellants' Exhibit 59), were taken for an average of 5.08 feet for the whole full height of the raise, or over four times the width of the vein; in other words, three-fourths of the material assayed, from which the values of this Pilot vein is taken and used as a standard, was country rock outside of the vein. The same situation is found in connection with 310-A raise. In 310-A raise, in the upper 180 feet of the raise, a similar condition is shown. The width of the Pilot vein according to appellee's exhibit 129, which appellants have attempted to incorporate as Diagram 15 in their appendix, shows the vein to have an average width of 2.44 feet. The sampling was done for a width of 4.38 feet; so that on an average, one-half of each sample was taken from the country rock. In the lower 75 feet of the raise appellee's average width of the vein is shown to be 5.63 feet, but appellants' samples were only taken for an average of 3.43 feet, showing only a portion of the vein.

These facts, which are beyond dispute, show that the assay values as taken by appellants themselves did not correctly show the Pilot vein in these raises, and destroy the comparison which appellants attempt to make.

Appellants' graphs, on their Diagram 15, show the average assay value of the west end line raises and these east end line raises as follows:

	Cu.	Ag.	Zn.	Pb.
West end line raises.....	0.15%	1.54 Oz.	1.36%	0.39%
East end line raises, Pilot	0.17%	0.56 Oz.	0.81%	0.22%

While the amounts in both are inconsequential and indicate nothing, it is plain that if the Pilot vein in 570-A and 310-A raises alone had been properly sampled the averages, as shown for the Pilot, would have been increased to a point at least substantially above that shown for these west end raises.

If appellants had desired a fairer comparison it would have been found by comparing their west end line raises with drift 560, which is admitted to be upon the main Pilot vein, The average of appellants' assays (exhibit 59) of drift 560, with the assays as given for the west end line raises would show as follows:

	Cu.	Ag.	Zn.	Pb.
Pilot vein, drift 560.....	0.15%	2.08 Oz.	0.75%	0.87%
West end line raises.....	0.15%	1.54 Oz.	1.36%	0.39%
351-A raise on west end	0.08%	0.2 Oz.	0.005%	0.23%
581-A raise on west end..	0.11%	0.33 Oz.	0.22%	0.13%

or an average for the total length of both of these raises, having a total length of something like 500 feet on what is claimed to be the Poser vein at the west end, of Copper 0.1%, Silver 0.26 Oz., Zinc 0.11%, Lead 0.18%.

It will be noted how inconsequential these amounts are and how they compare with the Pilot vein where it is fairly exhibited as in this drift 560.

There is no dispute as to the Black Rock fault being shown in drift 1378 of the Elm Orlu. Its average metal contents, over the entire 375-foot length of this drift, as shown by appellee's assays, Exhibit 138, is as follows:

Silver, 0.32 oz.; zinc, 0.60%; no assay for lead.

This compares favorably with the average of raises 351-A and 581-A above given.

An examination of the 2600 section, appellee's exhibit 124, and of appellants' assay evidence, exhibit 59, will explain the somewhat higher assays found in 1034-A raise and 747-A raise immediately above.

It will be noted that the Black Rock fault on this line of section shows a curving dip, dipping to the south rather uniformly from the surface down to the point about 80 feet above the 500 level, and then changing to a steep north dip down to approximately 100 feet below the 700 foot level, and from there it again changes to a south dip, which continues to the deeper levels. The evidence of appellee was to the effect that in this region of the 500 and 700 foot levels the mineralization in the west end line raises was due to the fact that the Black Rock fault here intersected and followed along more or less various branches or stringers of the Jessie and North State veins, both of which are present in this vicinity.

In section 2600 west, appellee's exhibit 124, and also on appellee's model, portions of the Jessie and North State veins are shown in 747 crosscut and, on the model

in the small crosscut just below that, in drift 734. The courses and dips of these veins are such that they would necessarily be cut by the fault, and drag portions thereof shown in assays taken in the raises below.

It will be noted from the cross-section that where the Black Rock fault and the west end line raise have the steep north dip near the 500 and 700 foot levels, this dip corresponds to the general downward projection of the North State vein which is developed in 17-D raise, and is also disclosed in the 300 level crosscut. From an examination of the assays it will be seen that as we come up the raise from the 1000 foot level we will see slightly higher assays in the upper part of 1034-A raise, and in a considerable portion of 747-A and in the steep portion of 581-A raise, but that at the point in 581-A raise, 80 feet above the 500 level, where the fault, and consequently the raise, take more of a south dip, the assays fall almost to nothing, and are comparable only to the assays found generally in the country rock, running much below the assay of the Black Rock fault in 1378 drift, above given. Therefore, on this plane of section, the assay values show plainly the enriching effect of these branches of the North State and Jessie veins, and the alternate barren and more mineralized patches in the raise, corresponding to the places where the fault is passing on its south dip from one vein to another, the better assay portions being plainly attributable to the presence of the veins or drag from them.

(13) West End Raises Below the 1000-Foot Level.

In the discussion in the brief and Diagrams numbered 15 and 16 appellants present a comparison between 1561-B Winze, where they state that appellee places the North Badger vein, with 1561-A Winze, where they claim appellee shows nothing but Black Rock fault. In connection with this discussion they insert Diagram 16 (appendix), a copy of Dr. Bateman's notes showing these two winzes.

Again, in this comparison, they practically destroy the standard, the vein in 1561-B winze, by the method of sampling employed, and inaccurately state appellee's position and proof as to the contents of 1561-A winze.

Appellee's position is that the lower part of 1561-A winze is chiefly on the Black Rock fault, with drag ore shown at intervals along it. Bateman's notes, which are copied in exhibit 16, show this, and also the evidence (See Sales' testimony, III, 1058).

Assay comparisons of this 1561-A winze, which we will discuss later, based upon appellants' assays, exhibit 59, will demonstrate, if they demonstrate anything, the geology as claimed by appellee, there being a much better showing of value in the upper part of the raise, where portions of the State vein, and drag, are shown, than in the lower. However, the comparison as presented in appellants' brief, is entirely destroyed by the unfair sampling of what they say, and illustrate from Bateman's notes, to be the vein in 1561-B winze. To illustrate this we present in the appellee's appendix, Diagram T, being a copy of the Bateman notes incorporated in appellants' appendix as Diagram 16, with data taken from appellants' assay evidence, exhibit 59,

showing the samples, with their widths, taken along this 1561-B winze. As shown by Bateman's notes, upon which appellants base this argument, the average width of the mineralization in this winze from the Badger 1800 foot level, upward to the 41st floor above the 1800 for a distance of 80 feet, is but six inches. The Court will note that on the copy of the Bateman notes, the width of the mineralization was noted by him. The average of the samples taken by appellants on each floor over this same length of winze is 6.14 feet. Above the 41st floor the Bateman notes show granite, but the assays continue for similar widths. It will thus be noted that in attempting to show this vein in 1561-B winze, to make this comparison, they use assay samples, of which, on an average, 11/12 were taken outside the vein, and the resulting assays accordingly diluted. The real result is a demonstration that the vein in 1561-B winze undoubtedly assays much better than the fault and drag material in 1561-A winze.

(14) **Appellants' Comparison of Vein Segments Above the 1000-Foot Level East and West of the Emily.**

In appellants' brief, pages 90 and 91, there is presented what is asserted to be a comparison of the average of all of the assays on the alleged Poser vein west of the Emily, with all workings on the vein east of the Emily, both segments being taken above the 1000 foot level. When understood, this comparison conveys nothing.

In the first place, the Pilot segment east of the Emily is not taken. What are used are appellants' samples taken selectively and from the territory assigned to the Poser east of the Emily. This is not the Pilot vein as

we have heretofore pointed out. They use widths in some places far beyond that of the Pilot vein, as shown upon appellee's exhibits, and as it exists in the ground. In some places the sampling is much wider than justified, and in others narrower. In connection with the discussion of the west end line raises above the 1000 foot level we have shown that in their sampling they have belittled the Pilot vein in raises 570-A and 310-A, by taking two or three times the actual width of the vein in places and in others much less than the width. In our discussion of the 700 foot level we will show how, in the only other illustration found in their brief of the level workings, they have done the same thing with the Pilot vein on the 700 foot level. These samples and assays are all incorporated in this general average used in this comparison on pages 90 and 91.

In the second place, as hereinbefore pointed out, all of appellants' averages are made arithmetically, following the erroneous and absolutely unjustified method which we have heretofore discussed. No regard is given to the length or area of vein represented by the sample. The samples were taken at more or less irregular intervals and, in short, a great number of samples regardless of what they represent, and in most instances not representing what they claim to, are all thrown together and averaged arithmetically.

In the third place, these averages mean nothing because whether poor or good, the averages or the results as to the Pilot vein east of the Emily could not result in any conclusion other than that agreed upon by everybody, and that is that this is a true fissure vein

characteristic of the Butte camp. West of the Emily, as we have shown, the older veins, veinlets and fault, and its accompanying mineralization mechanically taken from the veins which it has cut and crushed, will account for all of the assays, and this lumping them all together and presenting general average assays, either east or west of the Emily, cannot be helpful in the determination of any issue in this case.

(15) Appellants' Presentation of Assays of the Poser Vein on the 700-Foot Level.

In appellants' brief, accompanied by Diagram No. 17, appellants' appendix, by means of average assays shown by graphs, attempt is made to compare the mineralization of the Pilot vein east of the Emily, Section E, with the transverse structure section, where the north-west stringers or veinlets are found, Section C; where appellants, according to appellee, state that it consists of only Black Rock fault, Section B on diagram, and includes a portion of the North State vein, Section F on diagram, and Section A, where appellants' brief states that the westerly 120 feet of the alleged Poser, where appellants' brief states that appellee maps nothing but small stringers. Brief and diagram also purport to show, from Section G, the result of samples taken across the Emily vein for a width of 60 feet. Appellants then make certain comparisons between their assay results for the purpose of showing that the Pilot vein east of the Emily contains less mineralization than the segment C, where the transverse structure is located, and the section F, where appellants state appellee places only the Black Rock fault, and that the Emily vein has

less mineralization than these other portions of the alleged Poser, etc.

No purpose is to be served by restating these comparisons. They are confusing and inaccurate, and misstate appellee's geology of the entire territory as given by appellee and approved by the Court's findings. The sections are made up in group so as to apparently justify the desired comparison, and without regard to the geology given by appellee, which appellants claim to be using.

Section E, used by appellants in this Diagram 17, purports to be the Pilot vein east of the Emily. Their own diagram shows they have included in this section the broken-up portion of the Pilot in the westerly part as it approaches the Emily; but few assays are taken here, as shown by appellants' exhibit 59, but these are included as though there were still continuous solid Pilot vein, which is a direct contradiction of the testimony of appellee's witnesses and also of the facts upon this record. By using assays that are off the vein and only including a portion of those stringers and averaging the same arithmetically, a result is reached as to this Pilot vein east of the Emily which is deceptive and worthless.

The total length of workings on this Pilot vein, including its broken up portions as it approaches the Emily, is 340 feet. The more solid portion of the vein, shown in drift 726, has a length of about 280 feet. Appellants have not taken the Pilot vein in the widths, as given by appellee, although they claim to be using and to exhibit appellee's geology, but have taken a much wider representation in the easterly end and a narrower

to the west. An examination of Appellee's Exhibit which appellants purport to use, exhibit 98, shows that this Pilot vein, in drift 726 approximately to crosscut 739, has a length of 265 feet. The average width of the east 105 feet, as shown on this exhibit of appellee, is 2.11 feet. Appellants have taken their samples for this length for an average of 3.89 feet (Appellants' Exhibit 59), approximately twice as wide as the vein. In the west 160 feet, the appellee shows the vein to have an average width of 5.98 feet; the average width of appellants' samples is for only 3.09 feet (Appellants' Exhibit 59). Thus, in neither portion of the Pilot vein have the appellants sampled the same so as to show its true value. Appellants' assay evidence, exhibit 59, also shows that in the easterly part of this alleged Poser or Pilot vein they give the vein a width of 42 feet as against about two feet by appellee. In reaching the averages which they use in their presentation, appellants took 19 samples in this crosscut, which really represented but about five or six feet of the length of the vein, and only 28 samples in the 280 feet of drift. The 19 samples in the crosscut were taken as representative of the vein in the same way as the 28 samples, all averaged arithmetically. Thus appellants with the result of belittling the Pilot vein add approximately 39 feet of country outside the vein, as appellee describes it, in the east end, and take these samples and average them the same as if they were taken at regular intervals along the actual vein in drift 726. The effect of this can be readily shown. The 19 samples in the 42 feet of the crosscut average:

Copper, 0.08 per cent; silver, 0.75 oz.; zinc, 0.46 per cent; lead, trace.

The first 30 feet of the vein in the drift west of the crosscut, although represented by samples taken more than twice the width of the vein, showed:

Copper, 0.12 per cent; silver, 1.49 oz.; zinc, 2.96 per cent; lead, 0.17 per cent.

The next 100 feet west in the drift 726, where the samples also belittled the contents of the vein, as they were taken much wider than the actual mineralization, as shown on appellee's exhibit 98, and also by appellants' diagram 17 and exhibit 59, gave the following results:

Copper, 0.14 per cent; silver, 0.58 oz.; zinc, 0.45 per cent; lead, 0.31 per cent.

The next 125 feet westerly on the Pilot vein in drift 726, where the samples were taken for an average width of about 3 feet (appellants' exhibit 59 and appellee's exhibit 98) where appellee gave a width of 6 feet, showed, according to appellants' exhibit 59:

Copper, 0.14 per cent; silver, 0.45 oz.; zinc, 2.09 per cent; lead, 0.81 per cent.

It will readily be seen how the use of these 19 samples in 749 crosscut in the east end lessened the true value of the vein. Taking the vein in 726 drift, using appellants' samples and assays (exhibit 59) properly averaged, we find:

Copper, 0.12 per cent; silver, 0.60 oz.; zinc, 1.45 per cent; lead, 0.35 per cent;

as against appellants' presentation of an average for their Section E, of:

Copper, 0.12 per cent; silver, 0.48 oz.; zinc, 1.07 per cent; lead, 0.30 per cent.

Proceeding westerly, the segment G, covering the Emily vein, is the next portion presented by appellants in this portion of their discussion. They give as an average for the Emily vein, which they say shows less value than other sections on this level, where, according to appellee's geology, less values should be found:

Copper, .28 per cent; silver, .93 oz.; zinc, 1.09 per cent; lead, 0.33 per cent.

As clearly illustrating the methods which appellants have pursued in their sampling and use of their assay results, we desire particularly to call attention to the manner in which this sampling of the Emily vein was done and the samples used. To illustrate this in connection with the discussion, we have inserted in the appellee's appendix Diagram U, a copy of appellants' assay and sample sheet, No. 740, Elm Orlu, for the 700 level, appellants' exhibit 59, with the Emily vein in this section of the ground, as portrayed upon appellee's plan map of the 7th level, Exhibit 98, portraying the geology which appellants claim to use in this discussion regarding the 7th level. The assay sheet (Diagram U) shows that for some reason a double line of samples was taken along this drift 740, on both sides of and where it penetrates the Emily vein. Just north-erly of the south side of this drift 740 a small slip has partially dislocated the Emily vein. The samples used by appellants in this discussion and from which they get their claimed average of the values in the Emily vein for this width of 60 feet in Section G, are taken along the extreme south side of drift 740, running from where it is shown at Station 3299, to Station 3284. The assay sheets show that these samples in the westerly

part were not taken from the Emily vein but from the country rock lying south of the western faulted portion of the Emily. And the absurdly low averages that they get are arrived at by using these samples. In the Emily vein immediately north of and on the other side of this drift from where they have taken these samples from the barren country rock south of the vein in the south side of drift 740, appellants' sample 4961 showed:

Copper, 1.70 per cent; silver, 11 oz.; zinc, 1.5 per cent; lead, trace.

And sample 4963, immediately westerly of sample 4961, showed:

Copper, 1.52 per cent; silver, 9.3 oz.; zinc 1 per cent; lead, trace.

We cannot conceive of any possible excuse for the use of samples taken from outside of the vein on the south side of this drift 740, when their map from which they took the samples showed immediately opposite these higher values, and showed practically commercial ore in the Emily vein at this particular point. An examination of appellants' assay sheet 59 will show that a fair engineering average of the Emily at this point would be reached by combining the assays in 740 drift near Station 3374 with the assays across the vein on the north side of drift 740, which is the only working in the vein at this point, near Station 3299. The samples taken across the vein near Station 3374 with a width of 40 feet show as follows:

Copper, 0.44 per cent; silver, 1.33 oz.; zinc, 2.04 per cent; lead, .85 per cent.

Those taken across the vein near Station 3299, for 26 feet, show:

Copper, 0.82 per cent; silver, 4.70 oz.; zinc, 1.27 per cent; lead, 0.15 per cent;

or an average for the Emily vein of

Copper, 0.59 per cent; silver, 2.65 oz.; zinc, 1.73 per cent; lead, 0.57 per cent.

Westerly of the Emily similar methods are used by appellants to present favorable comparisons. They purport to take the segment C, which they state appellee contends contains only the transverse fissures west of the Emily. This does not correctly state the testimony of appellee's witnesses or its representation upon its maps and exhibits. The transverse structure extends westerly from the Emily vein, as shown in drift 740, for a distance of 160 feet. Beginning at crosscut 729, westerly in drift 728, appellee's witnesses plainly state that a segment of the North State vein is shown. (See testimony Steele, IV, 1565; Barker, III, 1418; Bateman, III, 1302; Sales, III, 1151-2).

The inclusion in the transverse structure section of any portion of the working, drift 728, upon the North State vein, would assist appellants' purpose of showing higher values in the transverse structure segment and, thus in making up Section C, they have added approximately 65 feet of the 728 drift on the North State vein. According to appellants' presentation, the transverse structure represented by C, shows:

Copper, 0.22 per cent; silver, 0.89 oz.; zinc, 1.06 per cent; lead, 0.18 per cent.

Taking the actual transverse structure segment, as shown for the 160 feet in drift 740, according to ap-

pellants' assays, exhibit 59, an average of this length of transverse structure would give:

Copper, 0.13 per cent; silver, 0.37 oz.; zinc, 0.45 per cent; lead, 0.11 per cent.

Omitting five samples which, according to appellants' diagram, came from the main northwest fissures shown on this transverse section, the assay average of Section C, according to appellants' sampling and assays, would be:

Copper, 0.13 per cent; silver, 0.30 oz.; zinc, 0.14 per cent; lead, 0.07 per cent, or, mineralization at least not greater than that found generally in the country rock, according to the samples of both parties.

A comparison of the proper average of the transverse fissure section, as above given, with Section C above will show the apparent increase in values reached by unjustifiably extending this section C to include approximately 65 feet of 728 drift on the North State vein. This 65 feet on the North State vein, in drift 728, shows from appellants' samples (exhibit 59) as follows:

Copper, 0.33 per cent; silver, 1.99 oz.; zinc, 5.52 per cent; lead, 0.84 per cent.

Proceeding westerly from drift 728 through the faulted portion thereof, and to the westerly workings on this level, where appellee's geology, which appellants purport to use, shows segments and faulted portions of both the Jessie and North State vein, the assays are what might be expected from segments of these older veins, which the Court found to exist in these workings.

Properly considered, appellants' samples and assays (Appellants' Exhibit 59) upon this 700 foot level demonstrate, if they demonstrate anything, the correctness of the geology of this level as given by appellee's witnesses and portrayed upon its exhibits.

The Pilot vein, upon the east, sampled much greater than its actual width in the eastern part, and narrower in the westerly, shows, in the 250 or 260 feet of drift 726 and crosscut 749, an average of:

Copper, 0.14 per cent; silver, 0.61 oz.; zinc, 1.57 per cent; lead, 0.44 per cent.

The next structure westerly, as portrayed by all the witnesses, is the Emily vein, which shows assay values, where cut by drift 740 of:

Copper, 0.59 per cent; silver, 2.65 oz.; zinc, 1.73 per cent; lead, 0.57 per cent.

Five foot streaks or portions of this run as high as:

Copper, 1.70 per cent; silver, 11 oz.; zinc, 1.5 per cent; lead, trace.

The 160 feet of transverse structure section, where no east-west structure is shown, should show lower values. The average of appellants' samples for the 160 feet is:

Copper, 0.13 per cent; silver, 0.37 oz.; zinc, 0.45 per cent; lead, 0.11 per cent.

Compare this with the Emily vein and Pilot segments to the east.

West of the transverse structure, beginning with crosscut 729, where appellee's witnesses place the segments of the North State vein assays indicating substantial mineralization may be looked for. Appellants' samples, exhibit 59, for the 165 feet of drift 728, ex-

tending from crosscut 729 westerly to where a branch of the Jessie vein is shown to cut off the North State vein, show:

Copper, 0.30 per cent; silver, 1.84 oz.; zinc, 5.61 per cent; lead, 1.04 per cent.

The drift 716, westerly of where this Black Rock fault cuts the North State vein on the 7th level, discloses but a small portion of the vein in the first part, showing a greater part as it approaches the old stopes. The first 30 feet westerly of where the fault is shown exhibits little mineralization in the drift, and appellants' assays, exhibit 59, sampled for a width of 3.80 feet, show:

Copper, .24 per cent; silver, 0.11 oz.; zinc, 0.48 per cent; lead, trace.

According to appellee's geology (exhibit 98), the next 40 feet of this drift should show better values, as it contains a considerable part of the State vein. Appellants' assays (exhibit 59) for this 40 feet, show for a width of $5\frac{1}{2}$ feet:

Copper, 0.25 per cent; silver, 2.42 oz.; zinc, 4.14 per cent; lead, 0.55 per cent.

The next 175 feet westerly on the North State vein was stoped years ago, which in itself speaks for the values which existed there.

Westerly of this stoped portion of the North State vein, where the portions of the Jessie and North State vein and drag therefrom is shown, according to appellants' samples which were taken irregularly through this portion, in the 20 foot section immediately west of the stoping on the North State vein, the assays show:

Copper, 0.14 per cent; silver, 1.42 oz.; zinc, 2.65 per cent; lead, trace.

The 30 foot segment westerly from this showed:

Copper, 0.11 per cent; silver, 0.81 oz.; zinc, 0.95 per cent; lead, 0.23 per cent.

And the westerly segment at Station 3006 showed:

Copper, 0.07 per cent; silver, 1.90 oz.; zinc, 2.65 per cent; lead, 0.48 per cent.

Properly sampled and presented in accordance with appellee's geology, which the Court approved, and which appellants claimed to use, we submit that appellants' assays upon the workings upon the 700 foot level show the conditions which would be expected to be found upon this level, according to the descriptions of the conditions therein by appellee's witnesses and the exhibits presented.

(16) Appellants' Assay Average of Poser Vein Above 1300 Level to 167 Level and Raises Above 1000 Level.

Counsel state (Brief, p. 95) that most impressive is the general average of the assays of the Poser vein above the 1300 level for the full length of the Poser claim, and quote from the opinion of the trial Court as follows:

"Averages computed by plaintiffs are as follows: All levels from the 167 to the 1300, both inclusive, silver, 0.71 oz.; copper, 0.24%, zinc, 1.15%; all raises from the 1000 level to the surface, silver 1.54 oz.; copper, 0.15%, zinc, 1.36%, lead, 0.39%. They compare favorably with those presented by plaintiffs from various veins." (Tr. p. 2241.)

Plainly the Court was simply illustrating the weakness of this assay testimony. The averages referred

to are those given by appellants. The Court did not state that these averages were correctly given, nor did he state that they showed values favorably comparable with other veins. The statement is simply that the averages appellants presented as to the levels and raises compared favorably with those the appellants presented from various veins.

The samples referred to by the Court, which were presented by appellants from some other veins, were, as we have heretofore shown, from carefully selected, poorly mineralized, portions of the Emily vein, and from samples taken from the Pilot vein in such manner as to unfairly portray the value of that vein, and from a chosen, poorly mineralized portion, of the Jessie vein.

The averages of appellants' assay evidence covering these levels had all the infirmities which we have heretofore pointed out in connection with appellants' sampling, the assays therefrom, and the selection of them for presentation to the Court. As we have shown upon the 700 level, and in connection with the raises, which are discussed in appellants' brief, the samples were not taken at regular intervals, but from selected portions, the averages were made arithmetically, without regard to the area of the vein represented. If space permitted, it could be demonstrated that on each level appellants followed similar methods in arriving at the averages as those used in the specific instances which we have already discussed, particularly that on the 700 foot level.

Appellants discuss these averages of the levels as if they represented the entire vein from the 167 foot level to the 1300. While appellants did an enormous amount

of work on practically every level, when it was all through comparatively small portions were presented as being upon what they claimed to be their Poser vein, and these covered but small portions of the length of the vein on each of these levels.

On the 167 foot level the maps show 95 feet of work, claimed by the appellants to be on the Poser vein, and all east of the Emily, excepting the exposure of the alleged vein in the west end raise, so that for the entire length of the claim, about 1300 feet, there was slightly over 100 feet which could have been covered by sampling. On the 300 foot level we find 165 feet of working, with the exception of the cutting by the raises, all on the Pilot vein east of the Emily. On the 500 foot level there was about 340 or 350 feet on the Poser vein, and 245 or 250 of this upon the Pilot vein. The effect of the sampling on the Pilot vein, in raising the average given for all of these levels by appellants which, as shown by the Court's finding, was:

Copper, 0.24 per cent; silver, 0.71 oz.; zinc, 1.15 per cent, will be appreciated when the average of assays (Appellants' Ex. 59) in 560 drift, which formed a large part of this Pilot work on the 500, is noted, as follows:

Copper, .15 per cent; silver, 2.08 oz.; zinc, .75 per cent; lead, 0.87 per cent.

As to the raises, practically the same objection may be suggested to this average submitted by appellants. The samples were taken through the raises regardless of what structures were disclosed therein, whether Badger, North Badger or State, North State, Emily, Jessie or other developed veins, and averaged as hereinbefore described.

It is not claimed by appellants that their averages for these levels and raises show commercial values, but these are excused by another reference to the fact that other well known veins in this and other localities have their lean and barren portions.

Further, we challenge the correctness of these averages. Averages computed by appellee from appellants' assays (Ex. 59) upon all the levels from the 167 to the 1300 show:

Copper, 0.18 per cent; silver, 0.41 oz.; zinc, 0.67 per cent.

It may be interesting to compare this average upon all these levels, which include the samples taken on the Pilot and other recognized veins, with the sampling of the Black Rock fault in drift 1378 of the Elm Orlu, where the fault was admitted by all parties to be found.

These assays (Defendant's Exhibit 138) showed the fault in this drift to contain:

Silver, 0.32 oz.; zinc, 0.60 per cent, as compared with an average of:

Silver, 0.41 oz.; zinc, 0.67 per cent, in all of these level workings from the 167 to the 1300.

(17) Appellants' Discussion of Mineralization of Poser Vein Distinguishable from Black Rock Fault.

On page 96 et seq. of appellants' brief a discussion is found on the comparative amount of mineralization in the Poser vein as distinguished from the Black Rock fault. The particular matter upon which the discussion is based is the claim of appellants that the lower court, over appellants' objections and exceptions, excluded from the record appellants' exhibits Nos. 153 and 154.

This argument of counsel arises through a misconception of the record and also of the undisputed evidence as to what constitutes the Black Rock fault, which, as the Court found, was the sole structure in a large part of the workings in controversy where the Poser vein was claimed to exist. The contention is based upon Assignments of Error Nos. XXIX and XXX.

(18) Assignment XXIX Covering Appellants' Exhibit No. 153, Marked for Identification.

In Assignment XXIX it is alleged that the lower Court erred in excluding from the evidence the assay graph marked for identification as appellants' Exhibit No. 153.

The record clearly shows that this assignment is groundless, as Exhibit No. 153 was never offered in evidence, and consequently no action of the lower court taken in connection with it. The transcript (pp. 2060-1-2-3) shows that the appellants' witness, Roddewig, was interrogated as to certain sampling and made full answer showing the sampling and generally the result of the same, giving the percentages of metals in the gouge streak of the fault and the percentage in the remainder of the fault or so-called Poser vein. After the witness had completed his answer (Tr. 2062) appellee's counsel objected to this line of testimony as not proper rebuttal. The Court, after discussion of counsel (Tr. 2063), sustained the objection, to which appellants' counsel excepted. Counsel for appellants then asked to have the exhibit marked for identification as Plaintiffs' Exhibit No. 153. This is the entire record in connection with exhibit No. 153. The objection of counsel

was simply to the line of testimony. It was not to strike out any part of the testimony, nor an objection to a question asked, but merely ran to the admission of this character of testimony at that time. Exhibit 153 was not offered in evidence, but was marked for identification and, upon the record, the intention of counsel in regard to it, is not disclosed. If counsel desired action by the lower Court, reviewable by this Court, it was his plain duty, under Equity Rule 46, to ask another question or make an offer of proof or put something before the Court showing the character of the evidence, the form in which it was offered the objection made, and the ruling and the exception. Merely an intimation by the lower Court, that it did not think this line of examination was proper rebuttal or material, certainly raises no question which can be reviewed upon this appeal.

Assignment of Error XXIX simply assigns as error the exclusion of Exhibit No. 153 which, as we have shown, was not offered in evidence. It is plainly apparent that even if a proper record had been made in the lower Court, and an offer to establish this character of evidence had been made, and the Court had rejected the same, the ruling would have been an entirely proper one. The matter suggested was not rebuttal, but should have been put in in the case in chief if at all. It was not material, the evidence underlying it was already in the record, and the witness, Roddewig, in the answer to the question immediately before the objection appearing in the record preceding this objection, had fully covered the subject. Further, the evidence would have been merely cumulative, and plainly immaterial.

This line of testimony was not proper rebuttal evidence. There is no claim that it was offered to meet evidence introduced by appellee. In the case in chief appellants introduced in evidence, without objection, a great mass of assay evidence, covering 4,000 to 5,000 samples, covering every conceivable character of sample, with assays thereon. In mining cases of the kind shown upon this record, the latitude given the expert witnesses, and the scope of the evidence in chief generally, renders it necessary that rebuttal must be limited in character. No reason appears why this evidence, if desired, was not submitted in the case in chief. Counsel's reason, as given to the lower Court upon the record, and the only one that appears (Tr. 2062), was that it was rebuttal because of the contention raised by appellee's counsel in cross-examination of appellants' witnesses on their case in chief. This is a novel theory upon which to base rebuttal evidence. The cross-examination of appellants' witnesses was as much a part of appellants' case in chief as the direct examination, and if they desired to strengthen their case because of any damaging attack made on cross-examination, it was their duty to do so before they announced the close of their case, and not wait until too late in the case for counter sampling or examination by appellee, and then offer the matter as rebuttal testimony.

Again, this character of testimony was not rebuttal because the supporting evidence had already been introduced in the record. Appellants' specific assays and sampling were introduced upon the record by a large number of small maps, not fastened together in any way, but merely placed in a large envelope. This

was introduced in evidence as Plaintiffs' Exhibit 59, and only the envelope marked. Copies of these maps, at the time of their introduction, were served upon appellee in the court-room, and afterwards, during the trial, checked by appellee. The maps showing these detailed assays as to gouge and the remainder of the fault or vein in these west end line raises were shown by the check to be in this exhibit 59. At the close of the trial the envelope with these maps was taken into custody by the appellants with other exhibits, by stipulation of counsel, and we have not again had an opportunity to examine them, but assume that these particular maps are still in the record. These maps give the description of the workings where the samples were taken, the width of the gouge and the remainder of the fault or vein, which was assayed, and the assay result. The graph, 153, about which complaint is made, is merely a computation as to the comparative amount, not percentages of the metals, found in the narrow gouge streaks, as against that of the rest of the fault or vein. Both these exhibits 153 and 154 are merely illustrations which anyone could compile from these assay maps. With this evidence upon the record, put in in the case in chief, what possible excuse was there for offering merely an illustration or computation made from the evidence already before the Court?

Further, the Exhibits 153 and 154 as well, being merely computations or illustrations from the evidence, not themselves showing the foundation evidence, it was unquestionably in the discretion of the Court whether he desired to encumber the record with further computa-

tions of this kind, which might as well be presented by briefs or in oral argument.

But, beyond this, the evidence claimed to be furnished by this diagram or graph 153, and the whole argument of counsel based thereon, comes from a wrong assumption of the evidence in this case as to what constitutes the Black Rock fault. It is true that appellee contended, and its brief showed and the Court found, that throughout considerable areas west of the Emily vein where the Poser vein was claimed to exist there is nothing but the Black Rock fault. No witness in the case testified that the fault consisted merely of a streak of gouge. The evidence is undisputed that the Black Rock fault, both in the Elm Orlu claim to the east, and in the ground in controversy, was evidenced by a streak or one or two or more streaks of gouge or finely ground up material, with attending crushed material. Where the fault consisted of a single streak of gouge, there was usually crushed rock caused by the fault movement on both sides of the streak. Where it consisted of two or more streaks the crushed material, which was as much a part of the fault as the gouge itself, lay mainly between the gouge streaks, having a width running up to as high as six or seven feet, or greater, in places. The gouge streaks, and the shattered ground and drag material between and accompanying them, formed the fault, and the alleged Poser vein showed nothing else in large segments and stretches. A characteristic description of this fault, illustrated by map, referring to the portion under discussion in drift 1346, is found in the testimony of Sales (Tr. III, 1155-1161).

As a result of the tremendous movement creating

these faults, the clay or gouge streaks resulted, and in this gouge is necessarily found more or less of the mineral constituents, in the form of fine particles, crushed and dragged from the veins and mineralized areas through which the movement took place. In the crushed and dragged material within the fault itself, between or accompanying the gouge boundaries, portions of the veins and mineralization encountered are also found, and it is in this crushed material necessarily that the larger portions of the dragged ore or mineralization or segments of veins are found.

There is no question but that mineralization would be found, both in the gouge and in the crushed material. The gouge being an inch or a few inches in width, and the remainder of the fault material running up to as high as six or seven feet or more, both containing mechanical fault mineralization, no one could doubt but that the larger portion of the total mineralization in the fault structure would lie in the crushed up portions of the fault outside of the gouges. The gouge, so far as assay percentages go, might run either more or less than the remainder of the fault. But if the entire fault were, as it was in many cases, twenty or twenty-five times as wide as the gouge, we would expect to find many times the total amount of metals in the crushed material outside of the gouges than that in the narrow gouge seam. Appellants' assay sheets illustrate this perfectly. A perusal of them will show that going down these west end line raises the gouge which constituted but a few inches, as compared with the entire fault which was in places wider than the raise, contained sometimes a less percentage of the commercial metals

and sometimes more than the crushed material between the gouges. An average of these assays of appellants (Appellants' Ex. 59) in 1346-A raise, for instance, shows that all the gouge samples average:

Copper, 0.08 per cent; silver, 0.21 oz.; zinc, 2.67 per cent; lead, 0.77 per cent.

The width of the gouge, as sampled by appellants, was shown to average: 0.09 feet, or a little over an inch. The so-called Poser vein, as sampled, had an average width of 4.29 feet, or over 46 times as wide, and the "vein" samples averaged:

Copper, 0.03 per cent; silver, 0.29 oz.; zinc, 1.16 per cent; lead, 0.86 per cent.

The gouge assays are generally higher than the vein assays and therefore show that there is more metal per unit of weight in the gouge than in the claimed vein. The vein being 46 times thicker than the gouge, what materiality can there be in showing that the total amount of metal present in the whole volume of the vein in the raise is greater than the total amount of metal in the gouge of the raise, the gouge having only 1-46th of the volume of the vein, and certainly no complaint could be made of the lower Court's action in rejecting such valueless evidence, if the same had **been offered**. Exhibit 153 (Appellants' Diagram 18) was therefore immaterial.

- (19) Appellants' Assignment of Error No. XXX, Relating to Appellants' Exhibit No. 154 for Identification.

Practically the same situation is found with reference to No. 154 as No. 153, just discussed. The record shows (Tr. 2064-66) that a question was asked the witness

Roddewig by appellants' counsel as to how certain samples were taken. An objection was made on the grounds stated in connection with the objection just discussed, and, in substance, that the evidence was not rebuttal. After a brief discussion, the Court (Tr. 2065) sustained the objection, to which an exception was taken. Counsel then asked to have the diagram 154 marked for identification, which the Court directed. Counsel for appellants then made an offer of proof by the witness that the gouge, throughout these levels in the Poser vein, contained a very small percentage of the entire metal contents of the vein, the portions being less than 10 per cent in the gouge and more than 90 per cent in the vein. This offer of proof was objected to as not proper rebuttal, and the objection sustained, and an exception noted.

Exhibit No. 154, which is all that is covered by the assignment of error, was not offered in evidence, nor any attempt made to place the same in evidence. The objection to the question asked and the offer of proof were properly sustained for the reasons which we have given. There is no assignment of error either in connection with 153 or 154, except to the exclusion of exhibits which were merely offered for identification, and upon the admission of which the lower Court had no opportunity to decide.

(20) Comparison of Fault Gouge Assays With Appellants' General Assays of Poser Vein.

Appellants' discussion of Exhibits 153 and 154, as to the assay values shown in the Black Rock gouge streaks, suggests a most startling comparison based upon these gouge assay values as presented by appellants, with the

general averages presented by appellants for their alleged Poser vein.

Appellants' sampling and assay sheets, Exhibit 59, as hereinbefore shown, and which we assume to be in the record, show appellants' sampling and assays of the gouge streaks in the Black Rock fault, admitted by all of the parties to exist in the west end line raises. Aside from these assay samples in appellants' Exhibit 59 the contents of the gouge in these west end line raises can be readily figured from the data given on exhibits for identification 153 and 154 and the evidence of Rodewig (V, 2060-2).

As stated by counsel in their discussion of this matter (Appellants' brief, pp. 96-100), this gouge in the west end line raises is at least a portion of the Black Rock fault, appellants contending that it constitutes the entire fault in the raises. It is admitted to be a post-mineral structure and not a vein. If the assays in this post-mineral gouge streak, constituting all or a part of the Black Rock fault, show greater average values than appellants present for their Poser vein on all of the levels from the 167 to the 1300 inclusive, and greater than the average for the alleged Poser vein in all of the raises, it must be conceded that the claimed probative effect of this Poser vein assay evidence is completely destroyed.

According to appellants' assay and data the Black Rock gouge streak in raises 1034-A, 1346-A and 1561-A and 1561-A winze and 2022-A raise, the winzes and raises on the west end, aggregating about 1300 feet in height, showed an average of:

Copper, 0.28 per cent; silver, 1.29 oz.; zinc, 2.18 per cent; lead, 0.38 per cent.

Appellants' average of all of the assays on all of the levels from the 167 to the 1300, both inclusive, showed as follows:

Copper, 0.24 per cent; silver, 0.71 oz.; zinc, 1.15 per cent. (Appellants' brief, p 95).

The average of all raises from the 1000 foot level to the surface, as shown by appellants' brief, page 95, gave the following:

Copper, 0.15 per cent; silver, 1.54 oz.; zinc 1.36 per cent; lead, 0.39 per cent.

Thus it appears, according to appellants' sampling and data submitted on this record that the non-mineralized Black Rock fault gouge, which is not a vein, and acquired its mineralization mechanically by the crushing and movement of the fault, shows comparatively much greater values than the alleged Poser vein on all of the levels from the 167 to the 1300, inclusive, and more than the Poser vein as claimed to be developed in the various raises. In other words, appellants' assays would present a much stronger case in establishing the conceded post-mineral fault to be a vein than it does for the region assigned to the alleged Poser vein.

What more need be said as to the futility of this assay evidence, when it clearly proves that the post-mineral fault fissure carries higher values than the alleged Poser vein?

(21) Diagram No. 20, Discussing 1034-A and 1346-A Raises.

In connection with this discussion of mineralization in the fault, appellants insert in their appendix Diagram

No. 20, with assay comparison, for the purpose of attempting to show that in the lower part of 1034-A raise, and the upper portion of 1346-A raise, where they say the appellee's evidence shows faulted veins and drag, the mineralization is less than in the upper portion of 1034-A and the lower part of 747-A raise, where they claim lesser amounts of drag are mapped or shown.

We have already discussed the assay showing presented by appellants in connection with 1034-A raise, demonstrating, we submit, that the mineralization there is clearly due to the portions of the North State and Jessie veins, which are unavoidably cut and dragged by the fault into the area covered by this raise.

It is a rather curious thing that with all of the levels and raises shown upon the record in this case as bearing upon the Poser vein issue, counsel again come back to these west end line raises. The only other portion of the mine which they present to the Court upon this question of drag or fault mineralization is a small portion of the 700 level, which we have already discussed. It is rather remarkable that from all of the workings upwards of 700 feet in length, and more than 2600 feet in depth, on the alleged Poser vein, which bear upon the relations of the Black Rock fault to the Poser vein, counsel should select one line of raises and one level upon which to rely to upset the findings of the lower Court.

However, it can plainly be demonstrated from appellants' assays that the comparison attempted to be made by counsel, referred to on pages 101-2 of their brief, only arises because of their careful selection of portions of the lower part of 1034-A and the upper part of 1346-A raise, away from where the drag and faulted mineraliza-

tion mainly appear. If the proper segments were selected, plain demonstration will be seen that the faulted mineralization is the source of the higher assays. As part of this discussion, we have inserted in appellee's appendix Diagram V, a cross-section of 1346-A raise, with the geology thereon from appellee's exhibits 124 and 125, and the cross-section with the assays from appellants' exhibit 59. The geology of the cross-section taken from appellee's exhibits, showing veins coming into the raise 1346-A and which, encountered by the fault, would furnish the drag below, is corroborated by appellants' evidence. Burch (I, 171) testified as follows:

"Q. Now, Mr. Burch, before you get down to the point of branching off, let me ask you some specific questions about these points here. There is represented on the model a yellow raise numbered 906, and below that a yellow raise numbered A-1419; is there any evidence below those two raises that the vein followed by this raise has come into contact with the Poser vein, as you described it in the 1346-A raise?

"A. Yes; I think there is. I will say that probably both of those veins are exposed in what is called the 43 crosscut, out of the raise; one near the 1346-A raise, and one some 25 feet away from it, and just below the 39 crosscut, I think you can see one of these departing upward.

"Q. Did you observe the point of contact or junction between the vein of the 1346-A raise and the yellow vein you have just described below the 43 crosscut.

"A. I never saw it at all. It undoubtedly comes in there somewhere, but it is so weak it is not recognized."

Thus it is apparent that Burch clearly and plainly recognizes a vein or two veins in the 43rd floor crosscut

with dips steeper than the alleged Poser vein and one of them at least, coming in contact with the alleged Poser, at some point in the 1346-A raise, approximately the 39th floor.

Burch does not describe the character of the vein or veins in the 43rd floor crosscut, but Appellants' Exhibit 59, which is an assay map of samples taken lengthwise of the crosscut, shows their metal contents.

Appellee's Exhibits 124 and 125 confirm the testimony of Burch as to the presence of a steep-dipping vein in the 43rd crosscut, which comes into 1346-A raise at a point below the 43rd crosscut, corresponding to approximately the point described by Burch.

The vital point in the conflict of testimony here is whether 1346-A raise follows continuously vein throughout its length, or whether this upper portion has been driven on the Black Rock fault alone.

Analyzing this 1346-A raise, and the assays on Exhibit 59, comparing:

- (1) The first four floors above 43rd floor;
- (2) The average assays for the entire length;
- (3) The assays in the 43rd floor crosscut south;
- (4) The average of the assay of the crosscut sampled and the sample taken in the raise at the north end of the crosscut, and
- (5) The average of the raise samples from the 25th floor to the 43rd floor, or the segment where the intersecting veins come in, the comparison shows as follows:

	%	Oz.	%	%
	Copper	Silver	Zinc	Lead
(1) Width 2.3 Feet.....	0.17	Tr.	Tr.	0.29
(2)	0.26	0.47	2.23	0.64
(3) Width 30.3 Feet.....	0.19	0.10	1.32	0.24
(4)	0.18	0.14	1.37	0.27
(5) Width 3.91 Feet.....	0.36	0.52	3.40	1.08

In connection with the assays in the crosscut on the 43rd floor it is to be noted that these samples were taken throughout the entire 30 feet of the crosscut. The veins, of course, only occupy a small portion of this space, and while the record does not show the width of veins sampled, it is a fair conclusion that the veins ran much better than the country rock between, thus indicating a higher metal content for the veins if sampled separately; the increase in assays between the 25th and 43rd floors of the raise is also corroborative of this higher value of the veins.

Appellants' samples taken from the 44th to 47th floors, inclusive, of the raise show:

Width 2.3 feet, copper 0.17%, silver trace, zinc trace, lead 0.29%.

It is thus again demonstrated that a considerable length of this raise fell far short of such mineralization as would distinguish it from the country rock, and that the higher mineralization in the raise was undoubtedly due to the passing through or within it of the vein or veins shown in this 43rd floor crosscut.

As appellants disclaim the Black Rock fault as a part of their vein it is plain that their assays are not sufficient to show the continuity of their vein upward. Beyond

this, we again have the Black Rock fault in the raise with a mineralization much higher in the weaker portions of the raise than the average shown, so that the values there, which may be attributed to the structure outside of the fault, must have been infinitesimal.

An important item in connection with this raise, and with the determination of the geology, is shown upon Diagram V. The cross-section at the left end of the diagram shows this raise 1346-A with the appellee's geology upon it. This shows appellee's claim that the only structure in the raise is the Black Rock fault, which is denied by appellants.

The next section to the right shows the width and places where the samples were taken by appellants' samplers in this raise. (Appellants' Ex. 59).

Most significantly it is shown that the only part of the material in the raise sampled was that within the limits of what appellee calls the Black Rock fault; in other words, in sampling this raise, the only structure recognized was the Black Rock fault. Appellants upon their 1300 plan map (Appellants' Ex. 16) portray a much greater width of their vein in this raise, but when they come to sample it, appellee's geology is corroborated. The assays in the raise also show what the miner followed was structure—the Black Rock fault—and not mineralization.

Appellants' assays in the lower portion of this west end line raise 1346-A and the connecting raise below, 1561-A raise, and raises A-1417 and A-1419, tell another interesting story, which we submit is entirely corroborative of appellee's description of the geological conditions in these raises. We attach Diagram W, showing 1561-A

raise, the lower part of 1346-A raise and raises A-1417 and A-1419, extending upward in the hanging wall of 1561-A raise, with appellee's geology as shown upon its section 2600 west. (Appellee's Exhibit 124). The diagram also shows appellants' assay data from appellants' exhibit 59.

Appellee's contention is that the State vein is followed in 1561-A raise, but that at about the 1300-foot level it is faulted by the Black Rock fault, and the faulted extensions upward disclosed in raises A-1417 and A-1419. Its position also is that in the lower part of 1346-A raise there is nothing shown but the Black Rock fault. Above that, in 1346-A raise, there is the Black Rock fault, with the drag and vein segments referred to in the above discussion as coming in from the 43rd floor crosscut.

If appellants' assays in 1561-A raise and A-1417 raise and A-1419 raise show good mineralization, and the lower part of 1346-A raise, exhibits inconsequential metal content, strong support is furnished for appellee's position. We give these average assays from appellants' data, as shown on Diagram W:

	Ft.	%	Oz.	%	%
	Width	Copper	Silver	Zinc	Lead
1561-A Raise	4.82	1.28	4.26	6.55	0.84
A-1417 Raise	2.13	0.26	0.33	2.67	0.74
A-1419 Raise	3.5	0.36	0.23	7.54	0.98
4th to 15th Floors 1346-					
A Raise	2.77	0.46	0.21	0.38	0.38
6th to 15th Floors 1346-					
A Raise	2.5	0.39	0.12	0.05	0.33

The low assays shown in the lower part of 1346-A raise might be compared with the appellee's assays of the Black Rock fault in drift 1378, which have been hereinbefore referred to: silver 0.32 oz., zinc 0.60%.

The record of appellants' sampling on exhibit 59 also shows that appellants' samples in 1346-A raise from the 4th to the 15th floor correspond precisely in width with the width of the Black Rock fault, as disclosed on Appellee's Exhibit 124. This raise has a width throughout this section of from 10 to 15 feet, but evidently the only structure within it which appellants' sampler found was the Black Rock fault, the sampling widths following that structure as they go up the raise. If the mineralization in the Black Rock fault throughout this section is taken to be comparable with what was found in drift 1378, it is amply sufficient to account for the inconsiderable amounts of metals found by appellants in the lower part of this raise.

The assays in these raises on Diagram W not alone tell the appellee's story of the structures in these raises, but also show that for a distance of practically 12 floors in the lower part of 1346-A raise there is such a failure of substantial mineralization as to indicate another fading out to nothing of the mineralization of the alleged Poser vein and disclose another fatal gap in the alleged vein *south of the south side line of the Poser claim*.

We might continue on and present from appellants' assays and the geology shown upon appellee's exhibits that there can be no escape from the statements of appellee's witnesses that on each level and through each raise in the mine the mineralization, in the places where the alleged Poser vein is nothing but Black Rock fault, con-

sists of the typical mechanical fault mineralization and drag and crushed material taken from the older veins.

(22) 1000-Foot Level—1034 Drift.

To show the presence of the fault drag and gouge mineralization and their effect on the assays, we will content ourselves with one further illustration, that in the 1034 drift on the 1000 foot level. Appellee's contention is that in a portion of this drift, as shown in the illustration, the only structure is that of the Black Rock fault containing drag ore from the Jessie and North State veins, and other small veins encountered. Upon the cross-examination of Sales, witness for appellee, appellants introduced in evidence a copy of Sales' geological notes taken underground. (Appellants' Ex. 126; III, 1157). We have reproduced this copy and inserted it in the appendix as Diagram X. We have marked on this Diagram X as C and D the portions of the drift where the Sales testimony places the drag ore in the fault (III, 1154-5). If there is drag ore there appellants' assays should distinguish these lengths C and D from the remainder of the drift. According to appellants' assays (Exhibit 59), as averaged by appellants, this drift 1034 showed average assays as follows:

Copper, 0.15 per cent; silver, 0.97 oz.; zinc, 1.59 per cent; lead, 0.79 per cent.

Lengths C and D of the drift, where Sales showed the drag ore, averaged:

C: Copper, 0.15 per cent; silver, 2.03 oz.; zinc, 3.37 per cent; lead, 0.97 per cent.

D: Copper, 0.16 per cent; silver, 1.02 oz.; zinc, 2.12 per cent; lead, 0.85 per cent.

The drift, excluding these Sections C and D, where the drag ore was, shows assays:

Copper, 0.15 per cent; silver, 0.47 oz.; zinc, 0.55 per cent; lead, 0.69 per cent.

Under this incontrovertible showing, can there be any doubt that the average assay value of drift 1034 was largely due to the drag ore? In fact, the remainder of the drift with these drag ore lengths excluded, showed only about the same amount of mineralization as the admitted Black Rock fault in drift 1378, which we have heretofore quoted, namely: silver, 0.32 oz. and zinc, 0.60 per cent.

(23) Poser Tunnel and Tunnel No. 1.

Conspicuous by its absence in appellants' discussion is any detailed exposition of the assays on the surface or in the level workings above the 700 foot level; in fact, that is the only level used, the omission evidently being upon their theory that little should be expected from Steward-age veins in higher levels.

In view of this it may be interesting to present a brief comparison of the alleged Poser vein in drifts 12 and 20 on the Poser tunnel level with the portion in tunnel No. 1 of the alleged Poser vein in the easterly part of the Poser claim, which the appellee calls the Pilot vein and recognizes as a fissure through which mineralizing solutions have passed. 6-C and 6-D drifts, in tunnel No. 1, extend westerly upon what appellee calls the Pilot vein. At a point 160 feet westerly from the easterly end of No. 6-C drift, the main part of the vein is shown upon appellee's maps and in its testimony to pass out of the drift to the

south (Appellee's Ex. 93). This 160-foot length furnishes a representative length of the vein on this level.

	% Copper	Oz. Silver	% Zinc	% Lead
Appellants' assays (Ex. 59) drifts 12 and 20, Poser tunnel	0.09	0.06	0.18	0.05
Appellants' assays this 160 feet of Pilot	0.20	3.05	Tr.	0.12

Or in multiples, as the appellants present them, what the appellee calls the Pilot vein in No. 1 tunnel, contains more than twice as much copper, over 50 times as much silver, a little less zinc, and over twice as much lead, as the claimed Poser on this tunnel level.

(24) Appellee's Samples.

For purposes of comparison appellee also presented the assay results of certain samples taken. It is stated in appellants' brief that, as appellee had full knowledge of appellants' assay maps and records for several days before appellee put in evidence its assays, its failure to dispute appellants' showing raised a presumption that appellee's sampling had confirmed that of appellants', wherever appellee had taken samples. This is not a justifiable inference. Appellants' maps, showing the results of several thousand samples, were presented by the fourth expert witness called by appellants, well along in the trial of the case. It was simply a physical impossibility to analyze, even superficially, this amount of assay evidence to determine what it showed or its accuracy. In addition, appellee was in position to do but little

sampling prior to the trial because of lack of knowledge of appellants' Poser vein and its claimed structure or boundaries.

It is true that in the first bill of particulars the alleged vein had been tentatively located in certain workings, but no details were shown as to the claimed structure or as to what part of the vein was shown in the workings or the limits of the vein on either side, and it was not until appellants' plan maps, portraying in red paint the alleged vein upon the various levels, were produced in court that appellee was in position to take samples for the claimed limits of appellants' vein. Strange to say, appellee's sampler, Linforth, a geologist and mining engineer, had been unable to define the alleged Poser vein (IV, 1837).

As the sampling, results of which could be presented upon the trial, was necessarily limited, a representative level, the 1300, was selected and assays made upon the alleged Poser in the drifts from end to end and in cross-cuts 13013, 1377, 1379, 1361, 1349 and 1357. For purposes of comparison, drifts 1368 and 1366 on the State vein, lying parallel and close to the alleged Poser vein were sampled, and for the same purposes the working 13008, which appellee claims to be on a segment of the North State vein. For the purposes of comparison, as showing what a crosscut working, extending through the country generally, would show in metal values, the longest north and south crosscut on the level, 1357, was sampled (IV, 1837). Appellee's method of sampling was the usual method of the Anaconda Company in its everyday mine work (IV, 1835). Sample results showing the claimed Poser vein and the country rock or granite outside

of it in crosscut A-1861 was also presented. The results of these samples were shown upon maps and graphs (Appellee's Exhibits 138, 139, 140 and 141).

(25) Results of Appellee's Samples.

The appellee's sampling of the Black Rock fault on the 1300-foot level, through drifts 1378, 1376, 1394, 13002, 1348, 13000 and 1346, from end to end of the Poser claim, followed the alleged Poser vein, and showed average assay value substantially the same as the average of appellants' samples of its Poser vein on the levels from the 167 to the 1300 level, inclusive, the comparison being as follows:

Appellee's samples Black Rock fault: Copper, 0.05%; silver, 0.46 oz.; zinc, 0.94%.

Appellants' Poser vein: Copper, 0.18%; silver, 0.41 oz.; zinc, 0.67%.

Appellee also sampled 488 feet of crosscut 1357, the longest north and south crosscut on this level, which might be taken as representative of the material exposed in the country away from the alleged Poser vein. It was recognized that fairly large, well defined veins crossed this crosscut, but the maps and the evidence show that all major veins and structures were excluded from the sampling (V, 2220-1). The results obtained from this 1357 crosscut assays were as follows:

Copper, 0.01%; silver, 0.17 oz.; zinc, 0.32%.

These results, we submit, are comparable with the inconsequential results shown above for the alleged Poser vein as an average for all of its levels to the 1300, but, with the Black Rock fault sampling of appellee upon this

level, certainly demonstrate that outside of the fault the alleged Poser vein contains less mineral than is shown in this crosscut through the country.

In rebuttal of the testimony as to sampling of this crosscut 1357, appellants introduced the result of the sampling of another crosscut on this level 1345. This showed lower metal results than 1357, but an examination of the large plan maps of appellants and appellee, introduced in evidence, will readily explain this. 1345 is not in a representative section as to small fissuring and accompanying mineralized granite, etc. A glance at the maps will show that the immediate area traversed by crosscut 1345 was more destitute of vein fissures, large or small, than almost any other portion of the ground in controversy.

It will be noted in appellants' plan map that generally upon this 1300-foot level the Poser vein is portrayed as being much wider than the drifts, and extends out into small crosscuts on each side. The assay results upon the portion of each of these crosscuts within the alleged Poser vein, as compared with that outside and in the granite country rock, will be illuminating.

The following tabulation shows the number of the workings sampled, the width sampled of the country rock in the particular crosscut outside of the Poser vein and the portion of the crosscut within the Poser vein, as shown from appellants' map, and the assay results of each:

PLACE	Width	% Cu.	Oz. Ag.	% Zn.
13013 XC outside Poser vein	31.5	.05	.37	.87
13013 XC inside Poser vein	30	.05	.45	.82
1377 XC outside Poser vein	35	.00	.00	.19
1377 XC inside Poser vein	17	.00	.17	1.91
1379 XC outside Poser vein	56	.11	.35	.19
1379 XC inside Poser vein	30	.00	.08	.94
1361 XC outside south of Poser vein	35	Tr.	.10	Tr.
1361 XC inside Poser vein	38	.00	.62	.68
1349 XC outside Poser vein	37	.00	.09	1.18
1349 XC inside Poser vein	10	.00	Tr.	.00
1357 XC outside Poser vein	100	Tr.	.27	.78
1357 XC inside Poser vein	22	Tr.	Tr.	.00

The results show that there was no difference in the mineralization of the country rock outside of the boundary fixed by appellants for their Poser vein as compared with the portion of the vein sampled within the crosscut inside the vein.

Comparison of the averages of portions of crosscuts outside the Poser vein with the portions inside the Poser vein show the following:

	% Copper	Oz. Silver	% Zinc	% Lead
Average crosscuts outside the Poser vein, total width 294.5 feet.....	0.03	0.22	0.75	No Assay
Average crosscuts inside the Poser vein, total width 147 feet.....	0.01	0.29	0.76	No Assay

These samples not alone demonstrate a lack of mineralization within the limits of these portions of the Poser vein beyond that found in the ordinary country rock where these samples were taken on this 1300-foot level, but also are important in connection with appellants' definition of the boundaries of their vein which, because of lack of fissure or other definite boundary, they claim to have placed at the point of fading out of their mineralization into that of the general country rock. Not alone was the sampler unable to find by the eye within the ground any such boundary, but was in no better position when the result of his assays was had.

In criticism of this crosscut assaying the witness Roddewig testified that Linforth had not covered the portion of the Poser vein within the drift where the best part of it lay. Of course, no one knew this until Roddewig stated it at the trial, but this is unimportant, as the assays clearly demonstrated that the location by appellants of this alleged vein at these points was purely arbitrary, and not supported either by walls or distinguishing mineralization.

As to the small red streak shown running diagonally through the crosscut 13013 at the "edge" of the alleged Poser vein, shown in pink, an examination of appellee's Exhibit 138, upon which the assay samples are shown, will demonstrate that the sample taken across this feature was not included in the assays above used for crosscut 13013, or the average of all these crosscuts, as above given. As fair evidence of the good faith of the sampler, it might be noted that the assay of this streak which was excluded from the samples shown, in order that nothing

but country rock should be included, showed comparatively high metal contents as follows:

Copper, 1.4%, silver 4.0 oz., zinc 23.3%.

As to crosscut 1379, an examination of appellee's Exhibit 138, where all of the assays taken are platted with their widths and location with assay results, will show that the samples taken in this crosscut did not include the cross features in blue, indicated upon appellants' diagram and upon appellee's exhibit 103. The small streak in red indicated upon appellants' diagram probably was included in the sampling. This assay has been entirely eliminated from the results in 1379 crosscut, outside of the Poser vein as hereinbefore given, and from the average assay results for all these crosscuts as above given.

An examination of appellants' exhibits 140 and 138 will show that only the 37 feet south of the Poser boundary was sampled in crosscut 1349. This fell short of reaching the red crossing structure shown, and included only granite.

The same may be said of crosscut 1377. An examination of these exhibits 140 and 138 will show that the veins designated as part of the State vein, crossing this crosscut 1377, were without the limits of the ground in the crosscut sampled by Linforth. His results covered only the first 35 feet south of the alleged Poser boundary at the side of drift 1346, and covered, as the map shows, simply country rock.

Appellee also presented samples taken in drifts 1366 and 1368 in the immediate vicinity of and paralleling the alleged Poser vein. These samples show a striking contrast with the averages found in 1346 drift along the

Poser vein only 75 feet to the north. The results are as follows:

	%	Oz.	%
	Copper	Silver	Zinc
1368 Drift, width 1.7 feet.....	4.12	5.64	2.78
1366 Drift, width 1.23 feet.....	0.97	2.83	8.19
1346 Drift, width 3.70 feet.....	0.03	0.45	1.09

While covering important points upon this 1300-foot level, appellee caused to be sampled the structure in 13008 Drift, which appellee claims is a segment of the North State vein. This 13008 drift has a direction a little west of north and is a drift upon this vein segment. The southeasterly portion of this segment of what appellee calls the North State vein is included by appellants within the alleged Poser vein boundaries. A sampling of this drift 13008 for a distance of 20 feet showed:

0.20% copper, 1.09 oz. silver, and 11.90% zinc.

These values might be compared with those shown by assays of the alleged Poser vein on this level and in this immediate vicinity.

Appellee's witnesses were unable to find any evidence of a vein in Crosscut A-1861 on the 1800-foot level, where it is placed by appellants. Appellants' witnesses contended that the vein was there indicated by altered or mineralized granite. Appellants' map showed the vein to be eight feet wide in the crosscut. The samples of this crosscut, starting with the eight feet designated by appellants as the Poser vein, and taking the next seven and eight feet in the crosscut, showed as follows:

	%	Oz.	%
	Copper	Silver	Zinc
First 8 feet Poser vein.....	0.00	0.50	Trace
Next 7 feet outside Poser vein.....	0.00	0.40	Trace
Next 8 feet in Granite and outside Poser vein	0.00	0.30	0.00

As neither sample showed copper, practically no zinc, and substantially the same amounts of silver, it is apparent that assays were of no particular assistance in attempting to locate appellants' claimed vein in this crosscut.

CONCLUSION ON ASSAYS

Examination of the assay evidence introduced by appellants in this case, and the contentions made in connection with them in appellants' brief, leaves us more and more in the dark as to what possible purpose such evidence could serve in this cause, except to confuse and cloud the real issues.

Aside from the unrepresentative, misleading and confusing character of this assay evidence of appellants, there is left upon the mind a vivid impression of what, to use a naval term, might be called low visibility of the mineralization of the alleged Poser vein.

The claimed vein, containing within its limits extensive lengths of the Black Rock fault which, through the fine particles of mineralization and coarser drag which it has accumulated from the veins, large and small, and mineralized territory adjoining, through which it has passed, would be expected to show higher mineralization than the average country rock, excluding the larger vein fea-

tures. It also includes within it on strike vein segments, and crosses through and takes to itself sections of veins, large and small, including the State, Jessie, North State and others, which contribute samples showing good mineralization.

It is really rather surprising, after the expenditure of enormous sums of money, and the doing of a tremendous amount of development work, to select for this Poser vein a route which would include the greatest amount of vein structure possible, that the sampling submitted should not have shown a much higher average mineralization. Among the averages submitted not a single consequential one is found, excepting in the lower levels, where appellee locates its important older veins. Certainly the result of this sampling does not convince that the alleged Poser structure, excluding segments of well known veins, furnished any channel, continuous or otherwise, through which valuable metals were deposited.

However, this unsatisfactory, unrepresentative, misleading and erratic assay evidence can at least be said to be in entire harmony with, and characteristic of, the alleged vein which it is brought in to support.

IX.

THE VIEW VEIN AND THE INTERMEDIATE VEIN.

1. General.

The stopes on the View vein above the 2800 level of the Badger mine constitute the basis for the second phase of this lawsuit.

In the discussion of this phase of the controversy we call the court's attention to the fact that the ore bodies

involved are within the surface boundaries of the appellee's claims. It is therefore governed by the same principles of law applicable to the Poser controversy, and the appellee is entitled to the same presumptions which flow from the ownership of the surface of the claims in which the ore bodies are found. The burden of proof which rests upon the appellants to justify the Court in segregating from its property a portion thereof, which presumptively was granted to it by the Government, is, as heretofore pointed out, not a light one.

Before discussing the conflicting evidence with reference to the Intermediate or View vein, we point out a number of important features about which there is no controversy.

The Intermediate vein is a branch of the Rainbow, departing from the Rainbow on strike about 500 feet westerly from the Poser east end line. Its strike is northwest and southeast. The union of the Intermediate with the Rainbow is disclosed on the 1000, 1300 and 1500 levels, and is in a vertical line, or approximately so. (Lawson, II, 842-843; Wiley, IV, 1714; Sales, III, 1097-1100.)

The Intermediate vein follows easterly in 1338 drift to the Emily, is cut off, and the faulted segment is disclosed on the hanging-wall side of the Emily in working 13020. It follows 1550 drift easterly to about 1583 crooscut. What is claimed to be the Intermediate vein by the appellants and the View vein by the appellee, is disclosed continuously from the east end of 1550 drift downward from the top of 1736-A raise to the stopes in controversy.

The Emily vein apexes in the ground of the appellee

for a distance of 370 feet westerly from the southeast corner of the Poser. (Sales, III, 1098.) The east end line plane of the Poser strikes north 15 west. The claimed trespass upon this vein is within 240 feet westerly at right angles from the east end line plane of the Poser extended, and the ore bodies are approximately 600 feet south of the south side line plane of the Poser.

The stopes in question on the 2800 level of the Badger strike northwesterly at an acute angle from said east end line plane, and lie between the Mill vein on the north and the Jessie vein on the south. The Mill vein and the Jessie vein are admittedly northwest or Blue veins of the second period of mineralization. The Mill vein and the View vein converge on dip, and are closely in contact just above the 2600 level.

The appellants contend that the Intermediate vein is of East-West age and is a continuous vein from the junction with the Rainbow easterly through 1550 drift and downward through the raises from 1736-A to the stopes below. The appellee admits that the Intermediate vein is a vein of East-West age, and joins the Rainbow on strike. The appellee contends that the View vein, which includes the stopes in controversy, is a vein of northwest age which underlies the Emily vein of the same age, does not pass through the Emily, is not found on the other side, and does not apex in the Poser claim, particularly in the area immediately above the stopes in question.

The method employed by the appellants in attempting to develop an apex for the ore bodies in question within the Poser claim should be noted. 2518-A raise starts at the 2500 level just west of the west end of the stopes on

the 2800 level and continues upward on that plane through 2216-A raise and 2024-A raise to the 1700 level. The next raise starts 145 feet southeasterly in drift 1736. From this point 1736-A raise is driven to the 1500, and holes into 1550 just east of the end line plane of the Poser. This raise was completed during the early days of the trial. (Burch, I, 158.) The appellants, of course, knew the position of the Emily vein overlying the ore bodies in question and apexing in the ground of the appellee for a distance of 370 feet west of the east end line. It was apparent that a continuation of any line of raises directly over the stopes would encounter the Emily, and if this vein was of East-West age, as contended by the appellants, it would be faulted by the Emily and found on the hanging-wall side. Instead of raising directly over the stopes and to an apex, the appellants moved northwesterly in 1550 drift a distance of 275 feet and drove 1550-A raise which holes in 1338 drift on the 1300.

As will be hereinafter pointed out, the appellee contended that the Intermediate vein left 1550 drift near 1583 crosscut, striking more easterly, and that from that point southeasterly 1550 drift followed the View vein of northwest age.

Arriving at the 1550 drift at the top of 1736-A raise the appellants proceed northwesterly safely beyond the controverted point, and put up 1550-A raise in what the appellee concedes to be the Intermediate vein.

Arriving at the 1300 they again move northwesterly in 1338 drift a distance of 265 feet and drive 1336-A raise to the 1000. This raise holes in 1060 drift 95 feet southeasterly from the top of 1250-B raise, just

west of which is the point where it is conceded the Intermediate vein joins the Rainbow on this level. This point is 510 feet west of the east end line plane of the Poser at right angles and 270 feet west of any claimed trespass upon the Intermediate vein in the stopes below. These distances and the position of these raises are readily determined from the respective maps of the appellants and appellee in evidence.

As heretofore pointed out in a discussion of the Poser controversy, the Emily vein was a well known, well developed vein in this area, and it is evident that the appellants studiously avoided any contact with this vein in their attempt to develop an apex for the Intermediate or View vein in the Poser claim, since the Emily vein for a distance of 370 feet at least west of the east end line plane apexed in appellee's ground, it must have been evident to appellants that if the vein in which the stopes in question are situated were to join the Emily on its upward course, or if it were to the south of the Emily, the ore bodies would belong to the appellee.

Concerning this method of development, Burch testified that prior to the commencement of the action no effort was made by the appellants to develop the apex of the Intermediate vein east of the Emily. We quote his testimony as follows:

"Now, proceeding easterly in the 1338 drift along the Intermediate, we find the Intermediate cut by what appears to be the same vein (the Emily). That is a projection through, and just how far it is thrown back, we cannot say, because we have not looked for it. There are no ore bodies of any kind whatever involved in this action in the Intermediate vein that are east of the Emily, and conse-

quently it was not worth while to spend the money to try to find just where it is on the east side.

"The Court: Is there any trespass claimed on this evidence?"

"Mr. Higgins: On the Intermediate?"

"The Court: Yes, sir.

"Mr. Higgins: Yes, if your Honor please."
(Burch, 1, 156.)

See cross-examination of Roddewig on the same subject (II, 491-493).

When this matter was called to the trial Court's attention in the trial brief of the appellee, the appellants responded by saying that uncertainty was avoided by avoiding the Emily vein and offsetting their raises to the west where a junction with the Rainbow on strike was shown 500 feet west of the east end line and 270 feet west of the west end of the stopes in controversy. They said in their trial brief:

"Instead of offsetting the raises so as to avoid encountering the Emily and its complications, all this work being entirely beneath Poser surface, defendant suggests that plaintiffs should have kept the line of raises close to the easterly end line extralateral plane of the Poser all the way through. This would have meant necessarily encountering the Emily and all of its branches and picking up the Intermediate segment to the east of the Emily. Plaintiffs would unquestionably have then been confronted by defendant's criticism that the right segment beyond the Emily had not been identified and it would have opened the door to other contentions which are now foreclosed by the continuous tracing."

(Appellants' Reply Brief, Trial Court, p. 139.)

The undisputed evidence and the admission of lack of confidence in their ability to develop an apex over the

ore bodies justified the following statement of the trial Court in its opinion:

"From this ore body also, plaintiffs raised rather than from an apex to descend; and not in a single plane but by offset raises. The reason advanced here as in some place elsewhere, is that other veins might have presented difficulties in following through. In such circumstances a vein cannot be projected through. If parties lack confidence in the essential continuity of the vein, discredit the presumption of continuity, there is no reason why the Court should have more confidence, and indulge the presumption."

(V, 2247.)

True, when this situation was developed upon the trial of the case, appellants made a somewhat frantic effort to locate the Intermediate vein on the hanging-wall side of the Emily, and it is admitted that it was developed in working 13020 from drift 1396. This effort continued until within two days of the close of the trial. (Lawson, V. 1908-1909.)

On this phase of the case, even assuming that the Intermediate vein was continuous from its vertical line of junction on the 1000, 1300 and 1500-foot levels, and departing from the Rainbow to the southeast, contained the stopes in question, there is no evidence in the record upon which the Court could find where the apex of the Intermediate vein was to the east, nor what its strike would be upon the surface. (Sales, III, 1099-1100.)

2. The Strike and Dip of the Vein in 13020 Drift Does Not Correlate With the Vein at the Top of 1736-A Raise.

The evidence with reference to the strike and dip of the vein found in 13020 drift on the hanging-wall side

of the Emily corroborates the position of appellee that the Intermediate vein in 1550 drift departs northeasterly near 1583 crosscut. Concerning this the lower Court said:

“And finally, to conclude that all the Intermediate vein departs northeasterly from 1550 drift at 1583 cross-cut, better conforms to the Intermediate on the 1300 level. There, cut by the Emily, and faulted 100 feet to the north and left, the eastern segment proceeds northeasterly as appears by the course of the drift plaintiffs ran to follow it and by the notes and testimony of defendant’s experts, plaintiffs’ experts to the contrary notwithstanding.” (V, 2252.)

After 13020 drift was driven on what both sides agree to be the Intermediate vein on the hanging-wall side of the Emily, appellants found that it was to their interest to have the strike of this vein directly east or south of east, and their witnesses testified accordingly. (Mead, V, 2011; Simkins, V, 1926; Lawson, V, 1910.)

On the other hand Sales testified that this vein shown in 13020 drift had a strike north 62 east. (Sales, V, 2172.)

As pointed out by the Court in the quotation above, the miners who drove the drift northeasterly followed the vein, thus corroborating Sales.

If this Court will attempt to project this vein in 13020 drift on dip to where the appellants claim the View vein at the top of 1736-A raise on the 1500 level, it will be found that it does not conform either to the dip or strike as given by the witnesses. The vein in 13020 drift dips to the south 65 to 70 degrees. Sales

says 68 degrees to the south (V, 2172). (Mead, V, 2011; Simkins, V, 1926; Lawson, V, 1910.) It strikes north 62 east.

In other words, the Intermediate vein as disclosed in 13020 drift strikes northeasterly, whereas what appellants claim to be the Intermediate vein and the appellee the View vein near the east end of 1550 drift and near the top of 1736-A raise, strikes southeasterly and the dip of the Intermediate vein in 13020 drift is such as upon projection would not connect with the vein coming up from the stopes below.

This condition further demonstrates the fact that the Intermediate vein in fact departs from drift 1550 striking northeasterly at about 1583 crosscut, as found by the Court.

3. 1550 Drift.

We have heretofore discussed the successive ages of vein formation and the later faults in this district.

A determining factor as to the ownership of the ore bodies in the Intermediate or View vein is the question as to whether or not the vein is of East-West or Northwest age. As heretofore pointed out, more than 50 years of mining in the Butte district have demonstrated that when a vein of Northwest or secondary age encounters a vein of East-West age, the older vein is fractured and thrown to the left a variable distance. The trial Judge, who has had years of experience and demonstrates an accurate knowledge of the Butte district, says:

“Intersection affords an infallible test of age
* * * *” (V, 2238).

In discussing the Intermediate vein, the Court said:

“As the Intermediate vein is of east-west age and the Emily vein is of Northwest age, it is virtually admitted and obvious they will not unite; and that if the vein in 1736 raise and the Emily vein do unite, the vein in the raise is a branch of the Emily vein and is not the Intermediate vein.”

(V, 2247-2248.)

1550 drift extends southeasterly from the junction of the Intermediate vein with the Rainbow to its intersection with the Emily vein in the southeasterly end of the drift. (Roddewig, II, 495.)

The vein followed in the southeasterly portion of 1550 drift branches. The right hand branch proceeding southeasterly connects with the top of 1736-A raise, and is admittedly the branch in which the stopes in controversy are found. The north, or left hand branch is shown in the eastern end of the 1550 drift. Later the southerly branch was drifted on to the top of 1736-A raise. (Burch, I, 158; Sales, III, 1094.)

The Court found that this northerly branch of the vein in 1550 united with the Emily, and was therefore of Northwest age. The Court says:

“The northern branch and the Emily unite, the former a branch of the latter. It follows that the northern branch is of northwest age as the Emily is; that the southern branch which is admitted to unite with the northern branch is also of northwest age; that the southern branch in 1736 raise is not the Intermediate vein of east-west age; and that the ore body in 2800 level is not in the Intermediate vein but is in a branch of the Emily vein.”

(V, 2251.)

Referring to these workings, the Court said:

“The second part of the case is resolved right

here. Again, the experts are not at much difference in respect to facts, but are hopelessly so, in opinions. For plaintiffs, Burch and Roddewig testify that they 'think' the northern branch and the Emily are 'very closely in contact,' but they 'see no evidence' of union, 'have been unable to find any evidence of a union whatever.'

"Plaintiffs' expert, Simkins, when asked on cross-examination, if the quartz of the northern branch did 'not disappear and go right into the Emily vein and that it can be seen as one vein for a distance of 15 or 20 feet,' answered 'I don't think that is quite true'; but that the mineralization in the northern branch forms contact with the Emily vein, quartz with quartz and no gouge or anything between them; and that proceeding southeasterly, the footwall of the northern branch is also the footwall of the Emily vein. And he volunteered 'but I don't know whether this is a junction or not.'"

(V, 2249-2250.)

We have heretofore called the Court's attention to the rule of law which requires the affirmance of the trial Court's findings of fact where supported by competent, credible evidence. With reference to this feature of the case, it is respectfully submitted that the evidence is so overwhelmingly in support of the Court's finding that any other finding would require a reversal of the case.

All of appellee's witnesses agree and testify that the north branch of this vein in 1550 drift joins the Emily vein. (Sales, III, 1094-1097; Bateman, III, 1338-1339; Barker, III, 1444, 1507-1510; Steele, IV, 1600, 1624-1626; Wiley, IV, 1713, 1818-1819.)

Steele testified:

"They came together and united, just like two streams flowing into each other unite."

(IV, 1626.)

Simkins testified:

"Q. Now, tell the Court whether or not the quartz mineralization leaving out mineralized granite that comes in on 1550 drift, coming in contact with the Emily vein does not disappear and go right into the Emily vein and that it can be seen as one vein for a distance of 15 or 20 feet beyond the point of contact right now?

"A. I don't think that is quite true.

* * * *

"A. The north branch goes out there and turns in the direction which is parallel with the main portion, which is shown on this map.

"Q. Parallel with the Emily?

"A. Yes, on a branch of the Emily; I think it is a branch of the Emily, I guess.

"Q. Parallel with what you concede to be a branch of the Emily?

"A. Yes.

"Q. Now, as those two streaks of mineralization come together right at this point, there is nothing to obscure your view in the back of this drift as to what actually happened, is there?

"A. No; I think it is pretty well opened.

"Q. Clearly open?

"A. Yes, I think it is.

"Q. So you can come in from 1550 drift and follow the mineralization right into contact with the Emily?

"A. Yes.

"Q. And on the contrary, you can follow a branch of the Emily from the northwest to its contact with the mineralization that comes in on the Emily 1550 drift?

"A. Yes.

"Q. And that quartz on the 1550 drift is brought in, right in contact with the quartz, with a branch of the Emily, and without any gouge or anything between them to obscure them, isn't it?

"A. I think that is substantially correct.

"Q. And from there southeasterly the footwall of this north branch in the 1550 drift is the foot-

wall of the Emily as disclosed by your additional working?

"A. Yes, but I dont know whether this is the junction or not."

(Simkins, V, 1934-36.)

Simkins' description of the contact of the vein in 1550 drift with the Emily fully supports Steele's conclusion that they come together and unite as two streams flowing into one.

Roddewig testified in their case in chief that the gouge or vein in the 1550 drift came in contact with the Emily in the east end of the drift, but denied a union, saying, "I would say, rather, that it is cut off," and again, "probably cuts off as far as I can see, in the workings that are exposed." (Roddewig, II, 494-5-6.)

However, when confronted with this same situation on rebuttal, he testifies:

"Q. Does the vein followed by the northerly branch of 1550 drift there come into contact with the northwesterly vein that you have described in that same working?

"A. I don't think it does; it comes very close, but I don't think it comes in contact at that point."
(V, 2054-5.)

Later on he testifies:

"Q. You don't think the north strand in 1550 has yet been cut off?

"A. No.

"Q. And it is your judgment that it is still in the drift in which the Emily is exposed, and continues in a southerly direction?

"A. Yes, that is my judgment.

"Q. And that is north of the vein which you raise on in 1736-A?

"A. Yes, I think so."

(Roddewig, V, 2154.)

Roddewig, in his testimony in chief, agreed with Simkins and with appellee's witnesses that the vein in 1550 drift came in contact with the Emily, but thought it was a cutoff rather than a junction. Now, as shown on rebuttal, he does not think the north branch in the 1550 drift is cutoff, but turns southeasterly along the Emily. Burch testified that this branch is in very close contact with the Emily, but thinks it a true branch of the Intermediate curling around towards the main branch. (Burch, V, 1969.) Mead, though appreciating the importance of this working, did not trace the matter closely, but did not believe it came in contact with the Emily. (Mead, V, 2027.) Lawson presented a sketch of the situation in the east end of 1550 drift, being P. 85. He testified:

"Just immediately to the south of that is the first strand or the more northerly strand of the Intermediate vein shown in pink 6 inches at the roof and something over about 23 inches by my measurement on the floor level, and coming to, touching a point, no more, just touching, and the strands of the Intermediate vein are inclined there, and appear to abut upon the Emily."

(Lawson, II, 846.)

When cross-examined with reference to this sketch and the relations of the veins at this crucial point, Dr. Lawson explained that the draftsman had made a mistake in the preparation of his sketch, so it is, we submit, impossible to know what his views were. (Lawson, II, 915-924.)

In appellants' trial brief they presented a diagram which purported to show a composite of their views of the condition at the east end of 1550 drift. There was

also introduced Roddewig's notes, D. 37, D. 167; Mead's notes, D. 152; Simkins' notes, D. 147. These notes, together with Lawson's sketch, P. 85, and appellants' diagram No. 3 from their trial brief are all shown on Diagram Y. An examination of these several exhibits will serve to show the confusion of ideas of the appellants' witnesses.

The Court's finding of a union at the east end of 1550 drift of the claimed Intermediate vein with the Emily is supported by the overwhelming weight of the testimony. In addition to that, the Judge visited this drift. The Court says:

"The view of the premises persuades that defendant's experts are to be credited, in their testimony that the northern branch and the Emily unite, and that Steele's comparison to streams flowing together, is an apt and forceful simile."

(V, 2251.)

In considering all of the evidence with reference to the Intermediate or View vein, and the Court's findings thereon, we respectfully submit that in judging the credibility of the witnesses and the weight to be given to their testimony, the Court was entitled to take into consideration the reckless opinions and statements of appellants' witnesses with reference to the Poser vein, and finding, as the Court did, that such opinions were not based upon facts, or were not reliable as to the Poser vein, was entitled to give them lesser credence than he gave to the opinions of appellee's experts, which he found to be reasonable and consistent with all of the facts as disclosed underground "save in some comparatively unimportant instances." (V, 2245.)

4. 1736-A Raise Extended, A-1648 Drift, A-1650 Raise and A-1660 Drift.

We have pointed out the fact that in attempting to develop a connection from the stopes on the 2800 level to a junction with the Rainbow, or an apex in the Poser claim, appellants studiously avoided contact with the Emily, and on arriving at the top of 1736-A raise moved westerly and put up successive raises joining the Intermediate vein with the Rainbow on strike 510 feet west of the east end line.

Appellee, in order to demonstrate the actual relation of these veins, extended the 1736-A raise above the 1550 drift, connecting with A-1660 drift; drove 1648-A drift from the 1600 Badger connecting with 1736-A raise below the Elm Orlu or Poser 1500, and prosecuted A-1650 raise connecting A-1648 drift with A-1660 drift.

Appellants concede that the vein disclosed in A-1650 raise and A-1660 drift and the upward extension of 1736-A raise is a vein of Northwest age. (V, 2195.)

As heretofore pointed out, appellants' witnesses agree that the Emily vein is disclosed in the east end of 1550 drift, which, as pointed out by the Court, is not more than 10 feet from the top of 1736-A raise on the 1500 level. This raise was extended by the appellee above the 1550 drift to its intersection with 1660 drift a distance of about 30 feet. Hence, if continuing upward on the vein disclosed in 1736-A raise, it unites with or is the same vein as disclosed in A-1660 drift, the vein in 1736-A raise is of Northwest age, and not the Intermediate. Appellee's witnesses testified that the vein followed up in 1736-A raise is followed continuously through A-1660 drift, A-1650 raise and A-1648 drift and the upward

extension of 1736-A raise. (Sales, V, 2177-2183; Bate-man, V, 2195-2198; Barker, V, 2209-2212; Steele, V, 2219.)

Since it is admitted that the vein in A-1650 raise and A-1660 drift is a vein of Northwest age, if the vein in 1736-A raise is the same vein as testified to by appellants' witnesses, the View vein and the stopes in question are of Northwest age, and cannot join the Rainbow, and do not apex in the Poser claim, but must join or apex south of the Emily, a vein admittedly of Northwest age.

Again, in connection with these workings, we find the appellants' witnesses confused and uncertain. At the time appellants' case in chief was presented, Burch, their litigation manager, testified that the Intermediate vein was disclosed in drift A-1660; also the vein at the foot of A-1650 raise was followed westerly in drift A-1648.

His testimony on this subject, after tracing the claimed Intermediate vein up 1736-A raise, is as follows:

"Q. Now, are you familiar with the raise A-1650, driven by the defendant just easterly from this?

"A. Yes, I am.

"Q. Is that on the same vein?

"A. It is not.

*

*

*

*

"Q. Which direction from the A-1650 raise, being driven by the defendant, is the Intermediate vein that you describe in 1736-A raise?

"A. It is substantially at the bottom of the raise, but as you go up, the raise going up on the northwest fault, departs from it and the drift driven northwesterly from the top of the raise on the thirteenth floor encounters the Intermediate

vein on the west side of the fault at 21 feet north-west from the raise." (Burch, I, 291-292.)

At the time Burch so testified these four workings had not been completed. At the same time, and as a part of their case in chief, Roddewig corroborated Burch's views, and found the Intermediate vein in A-1660 drift 20 feet west of the top of A-1650 raise. (Roddewig, I, 326-328.)

After these workings were completed, and on rebuttal, instead of finding their claimed Intermediate vein 21 feet west of the top of A-1650 raise in A-1660 drift, Burch testified that it was cut off in 1736-A raise extended by the Northwest vein followed in A-1660 drift, and finds this northwest fault vein continuous through A-1660 drift and descending down 1736-A raise extended to this point of claimed cutoff. (Burch, V, 1967-1968.)

Notwithstanding the fact that Burch saw the Intermediate vein 21 feet west of the top of A-1650 raise in A-1660 drift, in his testimony in the case in chief, he testified on rebuttal:

"Q. In your opinion, is there any portion of the Intermediate vein followed or disclosed in A-1650 raise, or A-1660 drift?

"A. I think not." (Burch, V, 1969.)

Roddewig testifies that the vein is a vein of Northwest age, and is the same vein which is in the upper portion of 1736-A raise, and which he testified cut off the claimed Intermediate vein above the 1550 drift. (Roddewig, V, 2056-57.)

Concerning this structure, Simkins' testimony shows that there is a continuous vein from 1736-A raise east-

erly through 1648 drift clear across A-1643 crosscut and beyond the foot of A-1650 raise. This testimony of Simkins is supported by appellants' exhibit (P. 19) of the 1600 Badger, that portion of which exhibit, together with Simkins' notes (D. 146) is shown in Diagram Z.

An examination of these exhibits will show a continuous vein through 1648 drift, though appellee's witnesses contended that this vein was cut off west of the foot of A-1650 raise. The shifting position of the appellants with reference to where the Intermediate vein meets and is claimed to be cut off by this northwest structure in these four workings is shown on Diagram Z-1, being a longitudinal section looking northerly, showing the position of the south branch of 1550 drift, 1736-A raise, A-1648 drift, A-1660 drift and A-1650 raise. This is the section referred to in the Court's opinion as the upright square of raises and drifts, and in which, as heretofore pointed out, all of appellants' witnesses agree is disclosed the continuous View vein followed up 1736-A raise.

5. The Lower Levels of the View Vein.

The conditions in the lower levels corroborate the finding of the Court that the View vein is of Northwest age. As heretofore pointed out, the vein strikes northwesterly at an acute angle to the Poser east end line, and likewise between two acknowledged veins of Northwest age, the Jessie and the Mill. The View vein and the Mill vein converge on dip and strike, and have the appearance of union above the 2600 level. (Barker, IV, 1519-1522; Steele, IV, 1596-1598; Wiley, 1708-1711.)

Long before this litigation was thought of in the ordinary geological investigation and mapping of these workings, this condition was recognized, and the vein to the east of the Black Rock fault was understood to be the united Mill and View veins, and was called the Mill View vein. (Wiley, IV, 1809-1812.) The Mill View vein is conceded to be a vein of Northwest age, and striking southeasterly cuts and displaces the State vein with a normal throw of a Northwest fault vein. (Roddewig, II, 485-86.)

While the correlation of the Mill vein and the View vein across the fault as the united Mill View vein was questioned, all of appellants' witnesses agreed that this correlation was reasonable. (Sales, III, 1090-92, 1097-98; Bateman, III, 1335-38; Barker, IV, 1520-22; Steele, IV, 1636-39, 1664-66; Wiley, IV, 1709-11, 1809-11.)

The Mill View vein striking southeasterly, as hereinabove pointed out, cuts and faults the State vein, showing its Northwest age.

6. There Are No Facts Which Would Warrant a Decree As to Any Rights on the View Vein West of the Emily Crossing.

We have elsewhere in this brief (ante, pp. 14-32) shown that by the pleadings as well as by the evidence there was no issue presented to the court as to any rights to the View vein, and particularly this vein was not involved anywhere excepting on the stopes in the easterly portion of the mine, and within 240 feet of the east end line plane.

Appellants complain that because the court found the View vein in that portion of the mine to be a branch

of the Emily vein that they should be awarded extralateral rights on the View vein west of the plane of the Emily crossing, which was 370 feet west of the southeast corner of the Poser. As pointed out in the former portion of the brief there was no issue tendered on this question, either by the pleadings or by the proof, but if the ownership of this segment of vein was in issue in the lower court, it is respectfully submitted that there is nothing in the record upon which the court might base any decree in regard thereto.

If appellants were to be awarded extralateral rights on the View vein west of this point, they would have to prove (1) that they had the apex of the View vein in that area (2) that the vein extended extralaterally underneath the premises of the appellee, and (3) that an adverse claim had been asserted to the vein in that area.

The View vein on its upward course west of this plane is last seen just above the 1000 level in the stopes above 1060 drift, wherein is also admitted to be the Intermediate vein. The Intermediate vein is a branch of the Rainbow, the junction with the Rainbow being on strike and not on dip. (Lawson, II, 842-43; Wiley, IV, 1714.)

Since the View vein is a vein of Northwest age it will not unite with the Intermediate vein, though it may intersect the same. The dip of the vein above the 1000 level is to the north. It is 1000 feet below the surface of the claim where last seen and dipping to the north, and where its apex may be is purely a matter of conjecture. Certainly the appellants would not contend that, with a vein dipping to the north, and toward the ground of appellee, the court should project it 1000 feet to the surface and find the apex to be in the Poser

claim. So that had the View vein in this area been in controversy, in this case the decree would necessarily be against the appellants and in favor of the appellee, because the appellants failed to show where the apex of the vein was.

But this is not all. The only evidence of the assertion of any adverse claim by the appellee to any portion of the View vein was in the stopes above the 2800 level. The proof shows a continuous vein from the top of 1736-A raise underneath the Emily and down to and including the stopes in question. The most westerly development of this vein, wherein any trespass is claimed, is in the stopes above the 2800 level, which development ends at about 1600 co-ordinate, or about 240 feet westerly at right angles from the Poser east end line plane extended. (Appellants' Exhibit, P. 27).

There is neither allegation nor proof that the appellee asserts any adverse claim to this vein, if it exists west of the plane of the Emily crossing.

There is not a scintilla of evidence in the record that the View vein exists under appellee's ground west of this plane of the Emily crossing.

Not only did appellants fail to prove where the apex of the View vein was west of this crossing, but they likewise failed to prove any adverse claim on the part of the appellee in this territory, and also wholly failed to prove the existence of the View vein in the premises of the appellee west of this plane.

Without development, the existence of the View vein in appellee's ground in the lower levels and to the west is pure conjecture. Hence it is that if an issue had been tendered upon this exact question, the decree of the court

must have been for the appellee, because of failure of proof on the part of the appellants as to any one of these three essential things.

Further the court found that the north branch of the View vein joined the Emily. It appears from the testimony that the south branch disclosed at the top of 1736-A raise has a vertical or northerly dip going toward appellee's ground on its upward course. In fact, Wiley testified that if it continued on its dip upwardly as disclosed in these workings that it would not only come back in the ground of the appellee to the south of the Poser, but "there would be no possible junction with the Emily," because of its northerly dip. (Wiley, IV, 1715.) If this branch should fail to join the Emily, and have an independent apex, that apex would necessarily be south of the Emily.

Where the north branch is shown to join with the Emily it departs therefrom to the west, and the junction is shown on strike; hence it is that so far as this record discloses the View vein apex may cross the south side line of the Poser to the west of the 370-foot crossing of the Emily, and it would necessarily do this if it apexed to the south thereof; and further the workings disclosing the View vein at its highest points are from 1000 to 1500 feet underground; hence, so far as the record discloses, it might apex entirely within appellee's ground to the west. So that plainly under the proof and the court's findings, there is no basis for the conclusion that this vein which contains the ore bodies in controversy would necessarily be governed by the rights pertaining to the Emily at all.

Any modification of the decree as asked would be

not alone unsupported by the evidence, but contrary to the evidence of all of appellee's witnesses and findings of fact of the lower court.

7. Question of Extralateral Rights on View Ore Body Because of Lack of Necessary Divergence on Strike With Poser End Lines Not Raised in Court Below or Here.

In appellants' brief (pp. 44-49) we find a discussion of the question of the extralateral rights of the appellants to the View ore body in controversy because of the fact that these ore bodies, on strike, form an angle of less than 45 degrees with the Poser end line planes. Counsel discuss the question as though it had been determined by the lower Court. This is not the fact. In the lower Court's opinion (V, 2246) the Court suggests the point, but expressly states that it pretermits it, as had the parties, and proceeds to consider the facts and determine the issues upon them. In the lower Court appellants were desirous of having a decision of this case upon the issues of fact and did not raise this point. Its decision here is not essential to an affirmance of the lower Court's decree and, upon this appeal, as in the lower Court, we find no justification for imposing on the Court the additional burden of considering and determining this question.

8. The Apex of the Pilot Vein Does Not Control the Ownership of the Ore Bodies in the View Vein on Any Theory.

Beginning on page 28 of appellants' brief it is urged that because of the contention of the appellee in the court below that the Pilot vein was a vein of Northwest age departing from the Emily on strike to the east, dipping to the north where it joins the Copper vein to the east

between the 1800 and 1900-foot level, and the Copper vein and Pilot vein joined the Emily at about the 2400-foot level, that the appellants should be awarded the View vein stopes, because they say if the Pilot is a branch of the Emily vein and the View vein is a branch of the Emily vein, the Pilot apex would control by reason of the priority of the Poser.

In the court below appellants in their trial brief, after considerable discussion of the question of union of the Pilot and Emily veins, said:

“We believe the Court cannot review this evidence concerning the alleged union of the Pilot and Emily veins without being impressed with the fact that there is no substantial evidence at all to support the claim that there is such a union.” (Appellants’ Trial Brief, p. 160).

Appellants made very strenuous contentions in the lower court not only that there was no union disclosed in these premises at any place between the Pilot and the Emily veins, but they contended, as they still contend, in their discussions of the Poser vein, that the Pilot vein was in fact a vein of Steward age and cut through the Emily.

This certainly leaves the appellants in an anomalous situation. In the portion of their brief wherein they discuss the Poser vein they urge the court to decree to them the rights which they claim upon the Poser vein by virtue of the apex of the Pilot, contending in that connection that they have demonstrated that the Pilot vein is a vein of Steward age and is continuous through the Emily on strike and dip to the ore bodies claimed to be in the Poser vein below, and in the same judgment they ask the court likewise to award to them the stopes of the View vein by

virtue of the apex of the Pilot vein, converting it for this purpose into a vein of Northwest age. It would be interesting to see the form of decree which appellants' counsel would propose covering this anomalous situation.

We submit in fairness to this court the appellants should now state their position and advise the court whether or not they contend that the Pilot vein is a part of the Poser vein and of Steward age, or whether or not they contend it is a branch of the Emily and of northwest age. They certainly cannot maintain both positions on this appeal.

Leaving aside, however, for the moment the contention of the appellants to the effect that the Pilot vein segment is the apex of the Poser vein, a vein of Steward age, and treating it solely as a vein of Northwest age, what rights does it afford the appellants to the View vein stopes?

Section 2336, U. S. Revised Statutes, provides:

“* * * * And where two or more veins unite the oldest or prior location shall take the vein *below the point of union*, including all the space of intersection.”

The View vein going easterly in 1550 drift splits and the north branch proceeds easterly where it unites with the Emily in the east end of the drift. This was the opinion of all of appellee's expert witnesses, and so found by the Court. (V, 2250-51.) The southerly branch of the View vein proceeds more southeasterly and is found in the 1736-A raise, and is the branch in which the stopes in question are found. The vein is continuous from the stopes in question through the line of raises to the top of 1736-A raise extended, and likewise continuous through drift A-1660, A-1650 raise and A-1648 drift. (Sales,

V, 2177-2183; Bateman, V, 2195-2198; Barker, V, 2209-2212; Steele, V, 2219.)

The Court found as follows:

"The northern branch and the Emily unite, the former a branch of the latter. It follows that the northern branch is of northwest age as the Emily is; that the southern branch which is admitted to unite with the northern branch is also of northwest age; * * * " (V, 2251.)

Appellants and appellee agree that the dip of this vein in the upper portion of 1736-A raise and in drift A-1660 is vertical or to the north. If the branch of the View vein, in which are found the stopes in question unites with the Emily on its upward course, the position of such union is not disclosed by this record.

While the Intermediate vein abuts against the Emily, and is cut off at the east end of 1338 drift, and while appellee's witnesses believed the View vein to be in 1338 drift, it is not shown to have extended easterly as far as the Emily, appellee being of the opinion that it took a southeasterly course leaving the 1338 drift before that drift reaches the Emily. (Sales, III, 1262-1263; Bateman, III, 1341-42; Barker, III, 1445-46, 1513; Steele, IV, 1601.)

It follows that nowhere in the record is there any evidence as to the line of junction, if such line exists, between the branch of the View vein in which the stopes are contained and the Emily vein.

On the hanging-wall side of the Emily the Pilot vein departs from the Emily, striking northeasterly, and is disclosed on appellants' and appellee's exhibits in the 1052 drift, (P. 14; D. 100); in the 726 drift, (P. 12; D. 98);

on the 500 level in 564 drift (P. 11; D. 97.) The strike of the Emily vein is northwest to southeast; of the Pilot vein southwest to northeast. If they unite, the union is on strike to the west and not on dip over these stopes. An examination of the models of both appellants and appellee will disclose that it dips to the north, and where last disclosed in the 1052 drift on the plane of the Poser east end line as disclosed by D. 119, the cross-section referred to in appellee's discussion of the relative position of these veins, the Pilot vein is approximately 425 feet north of the Emily, and dipping to the north. In the Section 1600-West, about 150 feet west of the east end line, D. 120, the Pilot vein is approximately 175 feet north of the Emily vein and likewise dipping to the north.

The evidence shows that, continued on its northerly dip and extending easterly, the Pilot vein unites with the Copper vein at about the 1800-foot level. The Copper vein is a vein of Northwest age, and the united Pilot and Copper vein in turn unites with the Emily at about the 2400-foot level. Mr. Sales testified as follows:

"Q. Mr. Sales, you might as well make that clear here. What is that Pilot vein at the east end?

"A. The Pilot vein at the east end is a vein that is well known. It has been developed in the Pilot claim, and running through the Pilot workings into the lower level until passing the 1800, where it unites with the copper coming from the north.

"Q. What relation has it to the discovery vein on the Pilot claim?

"A. It is the discovery vein of the Pilot claim.

"Q. You say it unites with the Copper vein on the 1800 level. Have you seen that junction on any other level?

"A. Well, I have seen it on the several levels down in that neighborhood.

"Q. Does it unite with any other vein to the southeasterly there?

"A. Do you mean down in these lower workings?

"Q. Yes.

"A. Well, the Copper vein and the Pilot form one vein and they both together unite with the Emily in the bottom levels, forming one vein.

"Q. What is the age of the Copper vein and the Emily vein?

"A. Of blue vein age.

"Q. What age do you classify the Pilot vein?

"A. The Pilot is a Blue vein, a member of the Blue vein system."

(Sales, II, 993-994.)

Sales' testimony in this regard is corroborated by Steele and Wiley. (Steele, IV, 1556-57; Wiley, IV, 1686-87, 1757-1760.)

Further confirming the course of the Pilot vein, both on dip and strike, we find on the appellants' model, stopes rising from the Copper vein marked "Pilot 1807" stopes, "Pilot 1607" stopes, and above these stopes on this model a raise extends up to the Pilot 1200. The appellee's model does not disclose the workings that far to the east. While the appellants placed these Pilot stopes and the raise up to the 1200 upon the model, the workings on the 1200 and 900 Pilot levels above are not disclosed. The appellants' model, however, discloses the existence of the Pilot vein on the 1200. (Steele, IV, 1615-16.)

The Pilot vein is therefore definitely located downward from the 1052 drift through the stopes "Pilot 1607" and "Pilot 1807" to its union with the Copper, and an examination of the model readily corroborates the testimony of Sales, Steele and Wiley that after uniting with the Copper

vein the united vein is again found to join the Emily at about the 2400-foot level.

This junction of the united Pilot, Copper and Emily veins on the 2400 level is within 250 feet east of the east end line plane of the Poser and more than 900 feet below the top of 1736-A raise extended, which is also east of the east end line plane of the Poser, this being the raise in which the upward extension of the View vein is disclosed at its highest point in this area, and it has not yet been shown to join the Emily on its upward course. It would be a remarkable thing if this junction 2400 feet deep at a point less than 250 feet east of 1736-A raise, could rise sufficiently in going this short distance westerly so as to take in the View vein south branch, but the Court is asked to assume this.

There is not a scintilla of evidence in the record that the Pilot vein joins the Emily vein anywhere on dip above the line of junction, if such a junction exists, of the branch of the View vein in which are found the stopes in question. If the appellants have any rights on the Emily vein, or any of its branches by virtue of a union of the Pilot and the Emily, it was incumbent upon them to show (1) that the Pilot and the Emily veins actually united on dip, and (2) that the union of the Pilot and the Emily was above the line of junction of the View vein and the Emily, because the statute provides "the oldest or prior location shall take the vein *below the point of union.*"

There is not a suggestion in this record of such a union of the Emily and the Pilot as would give the appellants extralateral rights on the View vein in the premises of the appellee.

9. Appellants' Contention That the View and Emily Veins Under the Black Rock Fault Constitute a Sub-Fault Apex Is Without Foundation in Fact or in Law.

1. The Evidence Establishes Continuity and Identity.

The claimed rights of appellants to the View vein stopes above the 2800-foot level were based upon the claim that it was a vein of East-West age, called by them the Intermediate, a branch of the Rainbow, a vein of East-West age, and apexed with the Rainbow. The Court found that appellants' evidence failed to prove that the View vein is a branch of the Rainbow or a part of the Intermediate. The Court further found that the northern branch of the View vein and the Emily vein unite in the east end of 1550 drift, the former a branch of the latter; that the View vein is a vein of Northwest age, and that the ore body in question is not in the Intermediate vein, but is a branch of the Emily. (V, 2251). We have elsewhere in this brief called to the Court's attention the evidence of the witnesses fully supporting the Court's finding in this regard.

In the trial of the case and in the original brief and arguments presented to the trial Court, the appellants contended that the Poser vein was a vein of Steward age. However, when appellee filed its brief in the Court below and utterly demolished this theory, appellants in their reply brief suggested that a vein of any age would serve their purpose, provided they got to and were permitted to claim the ore bodies in question. This situation prompted the trial Court to say in its opinion:

"In their reply brief, however, plaintiffs tentatively suggest that a vein of any age and structure will serve their purpose, and that perhaps the

Poser vein is of some age and form heretofore unknown."

(V, 2238)

Now that appellants are confronted with the finding of the trial Court, abundantly supported by evidence, that the View vein is a vein of Northwest age, they again take the position that a vein of any age will suit their purpose, provided the Court will award them the ore bodies in question.

Certainly the appellee is entitled to have this case decided upon the issues as presented to the trial Court. It was entitled in the first instance to be advised as to what those issues were, and to be given an opportunity to meet the claims made by the appellants. The record discloses that after the bill of complaint was filed, on motion and by agreement, a bill of particulars was filed (I, 43), and later a second bill of particulars (I, 89), all of which are a part of the record, and all of which advised the appellee that it was called upon to meet the claim that so far as the stopes on the Intermediate-View vein were concerned the claim of the appellants was that these stopes and the vein in which they were found was a vein of East-West age, a portion of the Intermediate vein, and a branch of the Rainbow.

It developed during the trial of the cause that the vein extending upward from the stopes in question lay under the Emily vein, which in that area apexed in the ground of the appellee, and an actual junction was disclosed, as elsewhere herein discussed, by the northern branch of this View vein and the Emily vein in the east end of 1550 drift. As elsewhere pointed out, the appellants

studiously avoided, in raising from the stopes in question, any contact with the Emily vein, prosecuted offset raises to the west coming up through the Intermediate vein to a vertical junction on strike of the Intermediate vein and the Rainbow, and their witnesses testified to a continuous vein of East-West age from this junction more than 500 feet west of the east end line plane of the Poser, and 270 feet west of the ore bodies in question down through this series of workings to the stopes.

Appellee's witnesses testified that the stopes were in the View vein and only the upper workings disclosed the Intermediate vein, and the Court found the facts to be as testified to by the witnesses for the appellee. Confronted with the findings of fact with reference to this situation, appellants say: "Very well, we will change our position and claim these ore bodies as a part of a Northwest vein by virtue of a sub-fault apex. Any age vein will suit our purpose, if we are permitted to take the ore bodies underneath the ground of the appellee."

The question of a sub-fault apex for these ore bodies was not presented to the trial Court as an issue of fact, and both sides, appellants and appellee, and each and all of the witnesses insofar as the question was discussed in presenting the case, agreed that the Emily vein was a continuous vein from its apex through the Black Rock fault and into the lower workings of the mine. Its identity and continuity were not questioned through the entire trial.

In the brief of appellants, presented to this Court, the Court's attention is not called to any place in the record where any witness questioned the continuity or identity of the Emily vein from the surface to the deepest levels

in this mine, and in the Elm Orlu immediately adjoining on the east. (This for the obvious reason that the question was never raised throughout the hundreds of pages of testimony that were taken concerning all of these underground workings.)

Not only did the appellants not question the continuity and identity of the Emily vein throughout all of these mine workings, but they affirmatively and repeatedly asserted such identity as will be hereinafter disclosed.

The models of both the appellants and appellee, as well as the testimony, disclose that the Emily vein is one of the prominent features in these mines, and particularly as to the Poser, the claim in question, it is the largest and most prominent vein underneath its surface other than the great Rainbow itself. (Roddewig, I, 373.) Mr. Wiley, a witness for appellee, testified:

"The Emily vein is a prominent feature, not so much on the surface—the Northwest veins are not as a rule as prominent as the east and west veins—perhaps, partly for the reason that they have more gouge and have been more eroded. The Emily vein, however, has been opened up on the surface in the Poser claim to the northwest of the Poser claim, extending beyond in a northwesterly direction, and in the southeasterly direction for a long ways.

"It has been extensively mined underground. It is one of the—next to the Rainbow, the largest developed vein in the Elm Orlu properties, and on the lower levels of the Elm Orlu Mine, especially when I made this examination some six years ago, it was the prominent vein mined, so it is not only on the surface, but in the deep lower levels which have been very extensively opened up." (Wiley, IV, 1681.)

On examination of the models and of the level maps, as well as the cross-sections referred to in appellants' brief, the Emily vein is disclosed as a strong, persistent, continuous fissure from the surface into the deeper levels of these claims.

It strikes northwesterly and southeasterly and dips to the northeast in the lower levels. Its dip in the upper levels and near the surface is slightly to the south. This is shown upon the level maps and upon appellee's model, wherein the stopes of the Emily vein near the surface are disclosed.

In addition to this the record discloses that the witness Sales testified positively not only that the north branch of the View vein had been developed to a junction with the Emily on the east end of 1550 drift, but that the south branch, containing the stopes in question, coming up under it had a vertical or north dip, and that if it joined the Emily, it would apex with it, and further that the apex of the Emily, being the identical vein which he was talking about on the footwall side of the fault was developed across the Mill View and Poser claims, crossing the south side line of the Poser approximately 370 feet west of the southeast corner thereof. (Sales, III, 1097-98.) This positive testimony of the continuity and identity of the Emily vein across the fault by this witness stands uncontradicted in this record, and if there was no other evidence on the subject, it is sufficient to sustain the Court's finding on this question of fact.

The only reason for the suggestion that the identity and continuity of the Emily vein is broken is because of the apparent displacement shown by appellee's ex-

hibits, D. 119, D. 120, and D. 121, being cross-sections, one at the east end line striking north 15 west, one on the 1600-West co-ordinate striking straight north and south, and Section B-B, which passes through the middle line of raises striking north 11 west about 300 feet westerly from the east end line plane. There is not a scintilla of evidence in the record to show what the actual throw or displacement of the Emily vein by the Black Rock fault is, at any one of the places, as it appears on these cross-sections.

This Court understands how the actual throw of a vein by a fault may be exaggerated or minimized by the relative angle at which the cross-section is taken to the strike of the vein and the fault at any particular place in the ground. Hence, without testimony as to the strike of the vein and the strike of the fault at the points where the vein and the fault are disclosed on these cross-sections, they mean nothing insofar as the actual displacement is concerned. (Sales, III, 1125-26.)

It is true that the witnesses for the appellants and the appellee agreed throughout the course of the trial that the actual throw of the Black Rock fault was downward on the hanging-wall side, and that the hanging-wall moved downward in relation to the footwall of the fault a variable distance estimated at 140 to 200 feet. There is no evidence that there was any horizontal throw; in fact, the record discloses that the witnesses agree that the throw of the Black Rock fault was wholly vertical and not horizontal.

Where the movement on any fault is vertical, the horizontal throw of any vein in which it comes in contact will depend upon the angle at which the fault meets

the vein. In other words, if a fault having a vertical throw of 100, 200 or 500 feet meets a vertical vein at right angles, the hanging-wall of the fault may move down any distance and yet the faulted segment of the vein on either side of the fault will be exactly opposite the segment on the other side. There will be no horizontal throw, either to the right or to the left, and identity or continuity is not interfered with across the fault. However, if such a vein meets such a fault at any angle other than right-angles there will be a displacement horizontally, and if in addition to the fact that the vein and the fault does not meet at right angles, the vein also dips at an angle different from the fault, the horizontal throw will likewise be greater or less, according to the angle of the dip and the strike.

With the Black Rock fault, striking northeasterly and southwesterly, the movement being downward on the hanging-wall or south side of the fault, when it met a vein which dipped to the north, the throw on the horizontal would be to the right. However, if the vein dipped to the south, the throw on any horizontal plane would be to the left. (Sales, II, 974-976.)

Consequently, if a vein in one portion of the mine where it was intersected by the fault dipped to the south, and in another portion of the mine it dipped to the north, on a horizontal plane where the dip was to the north, the vein would be thrown to the right, and on any horizontal plane where the dip was to the south the vein would be thrown to the left.

It so happens with reference to the Emily vein that in the upper levels it had a slight dip to the south, and in the lower considerable dip to the north. In the por-

tion of the mine represented by the cross-sections D. 119, D. 120 and D. 121, where the Emily vein was intersected by the fault, the dip of the Emily was to the north, and the throw on the vein on the horizontal was to the right. However, at the surface, where the vein dipped to the south, the throw was to the left. This is disclosed by the exhibits made a part of the record.

On appellee's exhibit, D. 92, the surface map, the Black Rock fault is shown cutting the Emily just south of the Poser shaft and throwing the faulted segment on the hanging-wall side to the left. The throw is very slight, and as shown by appellants' diagram No. 5-A, the Emily vein is a continuous vein across the surface of the Poser claim, and of the Mill View claim to the south, its identity and continuity being unquestioned. The continuity of the Emily vein crossing the Mill View and the Poser claims and into the Rainbow vein and faulting it, which necessarily includes its crossing the Black Rock fault, is shown on appellants' surface map introduced at the trial of the cause. (P. 5.)

Examining the 500 level, as disclosed by appellee's level map, D. 97, the Court will observe that the Emily is in two branches. It is admitted that the Emily vein is disclosed in workings 566 and 578 on the hanging-wall side of the fault. (Burch, I, 197-228; Simkins, II, 778; Roddewig, II, 422; Bateman, III, 1291-4; Sales, II, 1005.) This exhibit discloses the faulted segments directly opposite on the footwall side of the fault in workings numbered 550, 557, 594 and 556. (Sales, II, 1005.) The Emily was extensively mined in the earlier days by lessees on the Poser claim on the foot-wall side of the fault above the 500 from the Poser shaft. (Burch, II, 236-239; Sales, II, 969-970.)

Referring now to the 1000-foot level, appellee's map, D. 98, the Emily vein is disclosed coming up to the Black Rock fault on the hanging-wall side. On this level, as disclosed by appellee's exhibit, D. 121, Section B-B, the Emily vein has changed to a decidedly northerly dip by reason of which the faulted segment on the hanging-wall side is thrown to the right a distance of approximately 110 feet along the fault, which fault is developed easterly from the top of 1376-A raise disclosing the faulted segment of the Emily on the footwall side.

On this level in the area traversed by the fault the Emily appears to be together in one vein. However, when we arrive at the 1300-foot level, appellee's exhibit D. 103, 300 feet below we find the Emily vein in 3 branches on the hanging-wall side of the fault, and likewise in 3 branches on the footwall side of the fault.

Appellants in discussing the Poser vein and in criticizing appellee's assays on the 1300 level say:

"In making this comparison appellee has selected a crosscut which contains more and better mineralized cross veins than any other crosscut in the entire mine. This crosscut includes all the branches of the Rainbow vein between drifts 1334 and 1350, *three large branches of the Emily vein north of the Black Rock fault with their associated stringers and mineralization, and three large faulted branches of the Emily vein south of the Black Rock fault with their associated stringers and mineralization, * * **"

(Appellants' Brief, p. 102.)

Can there be any question of the continuity and identity of the Emily vein across the Black Rock fault in view of this admission of the appellants? Three strong

Emily across the claim with a very slight throw to the left on the surface; the continuation across the fault on the 500 level where the faulted segments are directly opposite on either side of the fault, the identification of the Emily across the fault on the 1000-foot level with a horizontal displacement of about 110 feet and on the 1300-foot level three branches on either side of the fault separated less than 50 feet, and admitted, as heretofore pointed out, by the appellants to be the Emily vein.

In determining the continuity and identity of a vein, the Court may take into consideration, as in determining any other fact, all of the evidence including not only the testimony of witnesses but the exhibits, the admissions made upon the trial, and all of the evidence relating to the continuity and identity of the vein not only at the point in question but throughout the mine.

“Identity may, of course, be proved by continuous development, although this is not always practicable, nor is it necessary. *It may be deduced from observed facts in different portions of the mine.*”

2 Lindley on Mines (3rd Ed.), Sec. 615, pp. 1473, 1474.

It follows therefore that the Court in determining this issue not only considered what might appear from the cross-sections relied upon by appellants, but all of the testimony and all of the development as shown on these exhibits, which it is submitted conclusively proves the continuity and identity of the Emily vein in the premises.

2. The Continuity and Identity of a Vein is a Question of Fact.

(a) Burden of Proof.

Since the ore bodies in question in the View vein are under appellee's surface the appellants have the burden of proof throughout.

Appellants have attempted to treat the question as though the burden had shifted to the appellee, and that though the ore body in question was under appellee's ground, it must prove to the Court the apex of the View vein in its ground in the same manner as though it were claiming an extralateral right. This, of course, is not the law. The burden of proof does not shift. It is always upon the party seeking to enter underneath the surface of another's claim. We do not question the rule as announced by Lindley to the effect that the appellants are entitled to "the benefit of all presumptions of fact which logically flow, in common mining experience, from other facts which may be proved." (3 Lindley on Mines (3rd Ed.), Sec. 866, p. 2170.)

Appellee claimed no portion of any vein segment under appellants' surface in this case. All of the ore bodies in question, being under appellee's surface, it was incumbent upon appellants to prove that these ore bodies were in a vein apexing in appellants' premises. If the evidence tended to show the vein entered the Poser claim and passed through to an apex outside of appellants' premises, or that the vein might well turn on its upward course and apex in appellee's ground to the south, appellants would have failed to discharge the burden upon them.

In other words, under certain conditions, if the apex of a vein would be disclosed well in the body of a claim

having come up on a uniform dip and continuing as such, if it were near the surface, the Court might make reasonable projections, and conclude that the apex was in fact in the surface of such claim. But such is not the fact here. The View vein was followed up a line of raises to the area underneath the Emily vein. The highest working on this vein in that area is disclosed in the extension of 1736-A raise, 1660 drift and A-1650 raise. The Court found the View vein to be in all of these workings.

At the top of A-1650 raise through A-1660 drift and in 1736-A raise extended above the 1550 drift the View vein is there shown to be vertical or north dipping. In the top of A-1650 raise appellants' witnesses agree with appellee's witnesses that it is a north dipping vein, and in 1736-A raise either north dipping or vertical. (Burch, V, 1969; Roddewig, V, 2057; Mead, V, 2012, 2015.) So where this vein is last seen on its upward course in this area it is nearly 1500 feet under the surface of the claim less than 100 feet north of the south side line plane of the Poser claim and dipping to the north, so that if continued on its upward course as last seen, it would not apex in the Poser claim.

Certainly under this state of facts no court would indulge the presumption that by reason of the fact that the vein was developed to a point beneath the surface of the Poser claim 1500 feet underground that it was going to apex within that claim.

In addition to that the Court found this to be a vein of Northwest age and underlying the Emily vein on its upward course, it would either apex with or south of the Emily vein.

Again, if appellants assert a sub-fault apex, they have the burden of proving such sub-fault apex. Appellants tendered no issue upon this question throughout the trial of the case, and simply because three exhibits (D. 119, D. 120 and D. 121), being cross-sections which may or may not depict the true situation with reference to the throw of the fault, apparently disclose considerable displacement without any evidence as to the presence or lack of drag ore through the fault, the similarity or dissimilarity of the segments on either side, the presence or absence of associated seams, veins and veinlets such as exist on either side of the 1300 level in the 1357 crosscut (Appellants' Brief, p. 102), in fact, without any evidence at all with reference to the factors which determine the question of continuity and identity of a vein which is interrupted by a fault, they ask the Court to find that the continuity and identity of the vein is destroyed, and that they be awarded the title to ore bodies under appellee's ground on the appearance of these three exhibits. And this notwithstanding, as hereinabove pointed out, the continuity and identity of the Emily vein across this fault is testified to positively and directly by at least one witness, Sales, and admitted by appellants' witnesses as well, and such continuity and identity is also disclosed and admitted on the various levels from the surface down wherever it has been developed.

- (b) The Court Having Found the Emily Vein to be Continuous and Identical from the Surface Down Through This Fault, and Such Finding Being Fully Supported By Competent and Credible Evidence, such Finding Must Be Sustained.**

The question of continuity and identity of a vein where intersected or interrupted is a question of fact. Appel-

lants in their brief, page 36, refer to the opinion of Judge Hunt of this Court in the case of Butte Company v. Societe Anonyme, etc., 23 Mont. 177, 58 Pac. 111, and to Judge Lindley's reference thereto as a "most instructive and valuable" opinion on the subject of identity and continuity.

While they quote in their brief, page 37, two instructions of the lower court, which were approved by the Supreme Court of Montana, they do not quote that portion of the opinion which Judge Lindley sets out in his work as valuable and instructive on the question of identity and continuity.

Since this is the leading case on the subject, we take the liberty of quoting rather extensively therefrom.

"The right of an apex proprietor to pursue a vein passing from his side lines is dependent upon whether or not, *as a fact*, the part or mineral body of vein matter which lies outside of the perpendicular of the side lines of his surface claim is so preserved in its identity with the lode inside that it is part of the same vein, the apex of which belongs to the surface owner. The solution of this question, not infrequently arising in problems of mining litigation, is often very troublesome; and it is in formulating a charge to a jury upon the elements involved in the inquiry that judges enter upon what, some fifteen years ago, Justice Miller characterized as a 'delicate task' and 'a matter of extreme difficulty.' (*Iron Silver Mining Co. v. Cheesman*, 116 U. S. 529, 6 Supreme Court 481). Judges, under our system, can only prescribe rules of guidance with relation to general principles; they cannot exactly apply these rules, though it is in their application that half the 'extreme difficulty' arises,—for the jury has its duty to be performed, and it cannot be interfered with. It is often hard, by looking at a map or model of conflicting mining locations and veins, to state

principles which should control the several hypotheses presented in a case; but it is sometimes much harder to correctly ascertain the true facts, from the testimony addressed to the model, to which the legal principles should be applied. And it will ever be difficult to get at the facts of such cases, until geologists agree upon like deductions from the complex, if not uncertain, conditions of the earth in which mineral deposits are found.”
(pp. 192-193).

Judge Hunt very clearly sets forth the proposition that the question of continuity and identity of a vein is a question of fact, which in a law case is decided by the jury under proper instructions, and in an equity case, of course, by the trial judge.

The difference between the situation in the Lexington case just quoted from and the case at bar is that there is no disagreement among the geologists as to the deductions to be drawn from the testimony and exhibits in this case. No witness testified either directly or inferentially that the Emily vein was not continuous and identical from its surface into the deeper levels. Its identity on both sides of the fault is admitted by appellants in their brief, and the continuity is unquestioned in the record.

Again Judge Hunt says:

“On principle, the identity of the apex of a vein with its spurs or extensions must be *the crucial test* by which are to be fixed the proprietary rights to that vein and the mineral therein.” (p. 193).

Later on the opinion reads:

“The pursuit of the vein on its dip being, then, the right to be guarded, the identity of the vein

pursued must be proven, to make the right availing, where it is contended the vein, after passing beyond the vertical planes drawn through the side lines of the surface boundaries of the location in which rests the apex, penetrates soil the surface of which is embraced within another location. Identity must always exist. Were there any departure from this rule, the miner might secure the benefit of more than he discovered, which was never contemplated by the law. Identity in mineral deposit should have no significance not usual to identity of many other material things. It means the same thing, or the same vein. It may be said to include a vein that is incessant. But a vein that is incessant or identical in its parts is *not necessarily a vein which is continuous, in the sense that the continuity or union of its parts is absolute and uninterrupted*,—in other words, though a continuity of vein does not preclude identity of vein, yet identity does not necessarily include continuity, in the exact sense just referred to. ‘Law of continuity (Math. and Physics),’ says Webster’s Dictionary, ‘the principle that nothing passes from one state to another without passing through all the intermediate states.’ Speaking exactly by this definition, it would often be very difficult, if not impossible, for the challenged proprietor of a mineral vein to convince a jury of the continuity of the vein from one part to another, for there might not be continuity by actual contact of the parts or contiguity, which the precise word may literally mean must exist. Were such a rule inexorable, a failure of proof would not infrequently be brought about by the inability of the miner to prove continuity without transition through intermediate states. The miner therefore might fall short of that exact measure of evidence required to establish a continuity of vein which excludes any interruption between one and another part of the identical vein, and, judged by too closely interpreted significations, the continuity of the vein would be lost; yet if he prove the identity of his vein by some incessant feature, in our judgment, the right to pursue the lode on its dip

is his, and there should but remain the necessity of going to the surface limits to accurately adjudicate the lines defining the right to the vein so identified."

(pp. 194-195).

Clearly the Supreme Court of Montana treated identity as the crucial test and substantial continuity, only, necessary. Exact identity must be proven, but only substantial continuity. The Court says:

"In this discussion, however, we do not mean to exclude the need of a continuity sufficient to preserve identity." (P. 196)

In other words, if the vein is so continuous that all agree on the identity of the segments on either side of the interruption, it meets the requirements of the rule.

Again at page 197 the Court says:

"It becomes, then, a question of fact, to be decided by the jury subject to general rules, whether there is that essential identity and continuity by which the vein can be traced through the surrounding rocks."

Again at pages 197 and 198 the Court says:

"The true sense in which there must be a continuity of vein is therefore a qualified one, and not an unqualified, exact one, irrespective or independent of physical conditions found in mining. It may be said, as a paraphrase of the decision cited, (*Iron Silver Mining Co. v. Cheesman*) that identity is essential, and the vein must be continuous, but its continuity may be interrupted, even to a closure of the fissure, without destruction of the identity, provided the extent of the interruptions or closure does not prevent the tracing of the lode or vein through the fissure to be identical in its parts as a geological fact."

Can there be any question in this case from all of the evidence in the record including the models, maps and other exhibits, but that the continuity and identity of the Emily vein was not only proven but that it stands as an admitted fact up until the close of the trial? And now the appellants finding that they had hopelessly failed to prove that the View vein in which are found the stopes in question was a vein of East-West age, a branch of the Rainbow, but on the contrary that it is established and found by the Court to be of Northwest age, grasping as one "grasping at straws" they inject this sub-fault apex theory by way of argument and without a scintilla of evidence to support their contentions. That the question of continuity and identity is a question of fact is recognized by all of the authorities.

2 Lindley on Mines (3rd Ed.) Sec. 615, pp. 1470, 1489.

Iron Silver Mining Co. v. Cheesman, 116 U. S. 529, 537.

Twenty-One Mining Co. v. Original Sixteen to One Mining Co., 260 Fed. 724.

M. O. P. Co. v. B. & M. Co., 27 Mont. 288, 315.

Tom Reed Gold Mines Co. v. United Eastern Mining Co., 209 Pac. 283, 291.

Following the decision in the Lexington Case (23 Mont. 177), from which we have quoted extensively above, a similar question of continuity and identity of a vein across a fault came before the Supreme Court of Montana. The Lexington Case was decided in 1899 and the case of M. O. P. Co. v. B. & M. Co., 27 Mont. 288, was decided in 1902. Two of the Judges who concurred with Judge Hunt in his opinion, namely, Chief Justice

Brantly and Judge Pigott, were on the court, and the opinion in the second case was written by Chief Justice Brantly.

In this latter case the plaintiff claimed a sub-fault apex on the Windlass vein underneath the Rarus fault in the premises, contending that by reason of the throw of the fault the continuity and identity of the vein had been destroyed. While the extent of the throw on the fault is not stated in the opinion, the facts were that the movement on the Rarus fault in this mine was about 240 feet

In addition to the fact that the continuity of the vein was interrupted by this extensive throw, the witnesses for the party claiming a sub-fault apex denied that the segments on either side of the fault were segments of the same vein, so that we have here not only this extensive throw, but an absolute conflict in the testimony as to whether or not the identical vein was being followed. The Supreme Court of Montana said:

"The point is made that the evidence is not sufficient to sustain the findings as to the situation of the veins, and their continuity and identity on their descent into the earth. The evidence is conflicting upon all the issues involved. The findings of the trial court thereon are conclusive upon this court, and will not be disturbed."

M. O. P. Co. v. B. & M. Co., 27 Mont. 288, 314, 315.

Since Chief Justice Brantly and Justice Pigott concurred with Judge Hunt in his learned discussion of the question of continuity and identity in the former case, their decision in this case, citing the former case, clearly shows that a displacement in excess of 200 feet, even

coupled with disagreement between the witnesses as to the identity of the segments on either side of the fault, did not, as a matter of law, destroy the continuity and identity of the vein, and that the use of expressions like "slight interruptions" and "considerable distance" were elastic terms, and after all it was a question of fact as to whether or not the continuity and identity of the vein had been established.

In the Tom Reed Case, *supra*, the Court, after pointing out that the question of identity and continuity of vein was a question of fact, said:

"In the case at bar much testimony was introduced on behalf of the appellee by geologists and men of practical experience in mining, mining engineers, and operators that the three deposits were separate and distinct veins, whether considered from a geological standpoint or from the standpoint of a practical miner, *and the court found this to be the fact.*"

Tom Reed, etc., Co. v. United Eastern Mining Co., *supra*, at page 291.

The question of continuity and identity being one of fact, even had appellants' witnesses not agreed with appellee's witnesses, and had contradicted the evidence in that regard, still the finding of the court, being amply supported by evidence, would be conclusive on this appeal.

(c) Appellants Rely on the Tom Reed Case.

The facts in that case were so different from the facts in the case at bar that aside from the issue being a question of fact, which has been found against them, it is not an authority as to the issues presented here.

In the Tom Reed Case the downward displacement along the fault was 430 feet. (Tom Reed Case, *supra*, p. 286.) In addition to this downward displacement of

430 feet, there was a horizontal displacement, the extent of which it was impossible to ascertain, but it was more extensive than the downward movement. (Pages 285-286.)

Naturally if the horizontal component of the movement could not be ascertained, the party claiming extra-lateral rights wholly failed to show that the segment of the vein on the other side of the fault was at any time in the past connected with the segment of the vein found within his claim. Concerning this the court said:

"As the horizontal component of the movement along the fault planes could not be shown, it is evident that within the extension of the end line planes of the Grey Eagle and Bald Eagle claims, respectively, the appellant could not make the proof of original identity upon which to predicate the right 'to follow these fragments with the same degree as if they were in their normal condition a part and parcel of the original land'."

Tom Reed Case, *supra*, p. 290.

Appellants by making some measurements or estimates of their own conclude that the distance between the different segments of the Tom Reed and Big Jim veins does not much exceed 100 feet. However, the court found that these segments were about 200 feet apart. (Page 285.) So it is, in the Tom Reed Case we have a fault with a downward movement of 430 feet, and a horizontal movement of an unknown distance, but conceded to be greater than the downward movement. The evidence wholly failed to show, and it was impossible of proof that the segment below the fault ever had been in contact with the segment in the Tom Reed claim. In addition to that, as shown by the diagrams set forth in

the opinion and in appellants' brief that the side line between the Tom Reed claim and the Big Jim claim passed through the fault between the dislocated segments so that there was no continuation of vein matter across the side line of the Tom Reed claim. In addition to that, the engineers, experts and operators testified that these two veins were separate and distinct veins, whether considered from a geological standpoint or from the standpoint of a practical miner, and on this disputed question of fact the court found that identity and continuity had not been established, an entirely different situation from that presented in the case at bar.

Appellants stress the proposition that in following down on the Emily vein as shown in these cross-sections, it is necessary to go upward a short distance in order to get the faulted segment on the footwall side of the fault. There is no question but that the right of an apex proprietor to follow his vein extralaterally on the dip must be on its downward course. However, it has never been questioned but what substantial compliance in that regard is all that is required, and certainly if the interruption of the vein is not substantial enough to destroy its continuity in a legal sense, then it does not destroy the right, because the vein is followed substantially on its downward course.

Looking at the Corra fault as disclosed on Section B-B, (D. 121), it is observed that where the Corra fault will intersect the View vein, the lower segment will be thrown upward, and appellants will be required in following the vein on the dip to do just exactly what is required in connection with the Emily, namely, the end of the faulted segment below the fault will be above the end of the

segment above the fault. The movement on the plane of the fault is from 40 to 50 feet. Burch testified:

"A. Horizontally it is around 30 feet or perhaps a little less, and that would mean upon the plane of the fault around 40 or 45 feet; 45 or 50 feet say." (I, 160).

Since Burch was the litigation manager and chief witness for the appellants, it is safe to conclude that the movement on the plane of the Corra fault is at least 50 feet.

Appellants therefore find themselves in the position of denying the continuity and identity of the Emily vein across this fault where, as it is disclosed from the surface down, the faulted segments are found directly opposite in places, and a few feet distant on other horizontal planes, but claim the right to follow extralaterally on the dip of this vein across the fault where the movement is as much as 50 feet and pick up the faulted segment on the other side where it is found above the end of the segment which they have followed down.

Appellee in the trial of the cause made no contention as to lack of identity or continuity of the View vein across the Corra fault, and makes none now, but it is respectfully submitted that the continuity and identity of the Emily vein on both sides of the Black Rock fault is much clearer and more fully established than the continuity of the View vein across the Corra fault.

10. In Re Intermediate and View Vein Are One and the Same Vein as Matter of Law.

In the discussion of the Intermediate vein in subdivision 5, beginning on page 49 of appellants' brief, appellants attempt to show that the Intermediate vein of

East-West age and the View vein of Northwest age are one and the same vein because the northwest View vein is found as a strike fault for some distance along the Intermediate on the 1500, 1300 and 1000 levels.

They say first the dip and strike of the two segments are identical. In answer to this it is sufficient to say that the strike of the vein in 1060 drift is about north 75 west; in 1338 it is north 85 west, and the faulted segment on the easterly side of the Emily is east or north of east. The Court found in accordance with the testimony of the appellee's witnesses that this segment of the vein was north of east.

"There, cut by the Emily, and faulted 100 feet to the north and left, the eastern segment proceeds northeasterly as appears by the course of the drift plaintiffs ran to follow it and by the notes and testimony of defenant's experts, plaintiffs' experts to the contrary notwithstanding." (V, 2252.)

With reference to the strike of this segment of the Intermediate, the testimony will be found as follows: Lawson, V, 1910-11; Mead, V, 2010-11; Simkins, V, 1926-27; Burch, V, 1964-65; Sales, V, 2172-73.

The stopes on the View vein above the 2800 strike north 45 or 50 west. (Sales, III, 1090).

The same variations in dip will be disclosed by an examination of the several raises on the View and the stopes on the Intermediate, as shown on the models of the appellants and the appellee.

Uniformity of width of both veins is interesting. Appellants call attention to the maps to illustrate the similarity of the width of the Intermediate and View

veins likewise citing Bateman's testimony that the Intermediate vein is 6 or 7 or 8 feet in width in the 1550 drift, and Burch's testimony that the stopes on the 3000 level "started" in ore averaging 6 or 7 feet in width. (Appellants' Brief, p. 50.) Demonstrating that in the trial of this cause appellants made no contention as to uniformity in the width of this vein, we call the Court's attention to the testimony of Burch as follows:

"Proceeding down the 1736-A raise, we have a rather good vein around 2 feet in the upper 40 feet of the raise. Then, it pitches down to a seam not more than 2 or 3 inches wide of quartz and zinc, with clearly defined walls." (Burch, I, 158).

This "remarkable uniformity" here varies from 2 or 3 inches to 6 or 7 feet, according to appellants' witness and litigation manager. Again Burch testifies:

"On the 3,000 we find a very remarkable condition, but I have seen similar things many times in the Rainbow Lode, but the vein upon which the stopes are started, is practically an average width of 6 or 7 feet of quite solid ore. The stope end at this white cross-cut the 3,004, I think it is called, and going westerly from that cross-cut it is distinctly the same vein.

"Q. That is the 3004?

"A. 3,004. That is the 3,004. In the 3,042 drift, driven by the defendants, there is between the walls mineralized granite. We cannot see anything of the vein nature in it, except the mineralized granite 2 or 3 feet wide. It is one of the remarkably sudden changes in a vein that is undisputably the same one.

"Q. How quickly does that change take place from solid ore to mineralized granite?

"A. Within the width of the cross-cut, 6 or 7 feet."

(Burch, I, 163-4).

This vein of remarkably uniform width pinches from 8 feet of ore to a seam 2 or 3 inches wide (Burch, I, 158), and from 6 or 7 feet of ore to 2 or 3 feet of mineralized granite "a very remarkable condition." (Burch, I, 163).

Without the citation of a single reference to the transcript, beginning at the foot of page 50, appellants' brief, appellants conclude that the mineralization in the two veins is the same, though we are unable to find anything in the record that justifies the statement.

On pages 51, 52 and 53 appellants assert and attempt to prove that Wiley, one of appellee's witnesses, admitted one of the branches in the 1550 drift easterly to be a branch of the Intermediate. An analysis of Wiley's testimony will not justify the conclusion. The Court will recall that as elsewhere discussed, appellee's witnesses testified that the Intermediate vein in the 1550 drift left the drift to the north just west of 1583 crosscut, and that from there southeasterly to where the Court found the vein in union with the Emily, was the View vein of Northwest age and not the Intermediate vein. To meet this situation the appellants during the trial ran drift 1588, which is not shown upon the regular exhibits upon a small branch vein leading out of the 1550 drift northwesterly. It is to this branch that Mr. Wiley's attention is directed. With reference to this he testified:

"Q. You are not prepared to testify that it is not the same vein?

"A. No; I am only prepared and testified that as that vein comes to the west—into the southeast, rather, that where it meets the Emily, it is a junction, and whether these other branches would then have the same relation to the Emily or not, I really

don't know in the absence of development." (Wiley, IV, 1818).

(We call the Court's attention to the fact that this testimony is misquoted on page 52 of appellants' brief, wherein they credit Mr. Wiley with saying "that where it meets the Emily it is *not* a junction." The record discloses that Mr. Wiley testified "it is a junction." No doubt this is a typographical mistake on the part of the appellants.)

An analysis of Wiley's testimony in this connection will disclose, as he stated, that because the branches striking northeasterly through 1583 crosscut were not developed that he could not tell what relation they had to the Emily; that is to say, whether or not development of these branches would disclose a union or junction, or a cutoff, and consequently he was not prepared to say that they were veins of northwest age. He distinctly said he could not tell because of the absence of development, but he clearly stated that the north branch of the View vein united with the Emily in the east end of 1550 drift, and the conclusion therefrom is that it is a vein of Northwest age and not the Intermediate vein. The Court in its opinion said:

"As the Intermediate vein is of east-west age, and the Emily vein is of Northwest age, it is virtually admitted and *obvious* they will not unite * * *"
(V, 2247-48).

Appellants next contend that the View vein is so interwoven with the Intermediate vein that the two for legal purposes cannot be disassociated and identified as two separate veins. They seem to be startled at the thought of a vein of later age being found as a strike fault along and with a vein of earlier age, and conclude

that since in the drifts where appellee contends that the Intermediate and View veins are found together, and the one cannot be identified from the other, they thereby become one and the same vein for all legal purposes, notwithstanding, as said by the Court below with reference to this condition, that as to veins of different ages "it is virtually admitted and obvious they will not unite." (V, 2247-48).

The Intermediate vein is a vein of East-West age and one of the first veins formed in the district. It is a common occurrence where a later movement takes place in the area for the later fissuring to follow the lines of least resistance and to tend to follow the older veins for distances when they meet. This is exactly what the appellants contend happened in the formation of their alleged Poser vein of Steward age, although they refer to this condition of strike faulting of the View vein along the Intermediate as an extraordinary condition. With reference to the Poser vein they say:

"The Poser fissure, as it came up from below where the stresses originated, encountered many East-West and Northwest veins or fissures already formed or in process of completion. Where these veins or fissures were parallel to and coincident with the Poser plane of fracturing, the Poser followed them for a distance, reopened them, and added to their mineralization. * * * This phenomenon, the tendency of a later fissure to follow an earlier one as a line of weakness, is well illustrated by the Black Rock fault, which followed the Rainbow for a long distance, and then broke over from the Rainbow just east of the Poser claim and followed the more recent plane of weakness presented by the Poser vein to the west."

(Appellants' Brief, pp. 107-108.)

With reference to the intermingling of the alleged Poser and older veins, both of East-West and Northwest age, the appellants likewise have in the lower levels for great distances on strike along what they claim to be combined veins, the Black Rock fault. In other words, in the places in these lower levels they have (1) veins of East-West age (2) Poser vein of Steward age, and (3) the Black Rock fault; in other places perhaps (1) veins of Northwest age, (2) the Poser vein of Steward age, and (3) the Black Rock fault. That the Black Rock fault coincides with and strike faults the Poser vein for considerable distance is stated in appellants' brief, page 12.

The trial Judge found in the Elm Orlu case that the Black Rock fault behaved in a similar manner wherein it followed the Rainbow for great distances as stated by appellants, and then departed therefrom into the country.

Clark-Montana Co. v. Butte & Superior, 233 Fed. 547, 560.

This is exactly what the appellee contends occurred in the formation of the View vein. Coming up from the deep and departing from the Emily westerly in 1550 drift, it encountered the previously formed Intermedite vein, and for some distance became a strike fault along that vein. Appellee admits this condition to exist on the 1500, 1300 and 1000 levels along portions of the Intermediate vein. There is nothing anomalous, extraordinary or unusual about such a condition. In fact, it conforms exactly to what the lower court found with reference to the action of the Black Rock Fault along the Rainbow lode, and what appellants contended happened in the

formation of the Poser vein, whereas, as hereinbefore pointed out, they contend in their brief following the lines of least resistance it became a strike fault along both East-West and Northwest veins then existing in the ground. But as said by the Court below in its opinion, "it is obvious they will not unite" because they are veins of different ages. (V, 2248).

The Congress of the United States in the preparation of the mining law recognized just such a condition. It was recognized not only that veins would unite in which event "the oldest or prior location shall take the vein below the point of union," but it was likewise provided, "where two or more veins *intersect* or cross each other, priority of title shall govern, and such prior location shall be entitled to all ore or mineral contained within the space of intersection; but the subsequent location shall have the right of way through the space of intersection for the purposes of the convenient working of the mine." (Sec. 2336, U. S. Revised Statutes).

Appreciating that veins of different ages might intersect for long spaces and again divide, just as the Black Rock fault if it were mineralized would intersect the Rainbow and be so intermingled as to be impossible of segregation as between different owners of the apices, the Congress very wisely provided that throughout such space of intersection the prior locator should have the ore, but if the veins again became separated, the junior locator would have a right of way through the space of intersection for the purposes of the convenient working of his mine. Hence, it follows that though the View vein and the Intermediate vein may intersect and be together, so intermingled that neither miners nor engineers nor ex-

perts would attempt to define the separate parcels thereof, nevertheless they would remain separate and distinct veins and upon separation would each belong to the locator thereof.

It is therefore not sufficient for the appellants to show that the View vein of Northwest age intersected within its ground a vein of East-West age, even though they disclosed the apex of the vein of East-West age.

It is further incumbent upon them in order to establish rights to the ore bodies in the vein of Northwest age, which ore bodies are situated in the premises of the appellee, to show that they actually have the apex of the Northwest age vein in which the ore bodies are found.

11. The Appellants Have Failed to Prove That They Have Any Extralateral Rights on the Intermediate Vein.

As elsewhere pointed out in this brief, the undisputed testimony is that the Intermediate vein departs from the Rainbow on strike. This departure on strike is disclosed in a vertical line or approximately so. (Lawson, II, 842-3; Wiley, IV, 1714.) These junctions are disclosed on the 1000, 1300 and 1500 levels 510 feet west of the east end line plane of the Poser. The Intermediate vein strikes southeasterly from the Rainbow, and there is no evidence in the record, nor is there any development in the ground from which it may be concluded that the Intermediate joins the Rainbow other than as disclosed on these three levels. (Sales, III, 1099-1100.)

Lawson testified that because the Rainbow had a tendency to turn over to a somewhat northerly dip that as you went eastward the Intermediate vein would in-

tersect the Rainbow "in a junction which is a rake much more nearly horizontal than vertical." (Lawson, II, 929.) And likewise Mead comes to practically the same conclusion, though he does not contend that the Intermediate would join the Rainbow to the east, but he was sure that it would apex in the Poser ground. (Mead, II, 684.) Later he says:

"I am confident it apexes in the Rainbow."
(Mead, II, 686.)

The highest working on the Intermediate vein is the small stope above the 1000 level which extends just a few feet above the drift.

As heretofore pointed out from its junction with the Rainbow on this level to a depth of 500 feet it departs southeasterly from a vertical line of junction, and without a scintilla of evidence to disclose where it goes either on dip or strike above the 1000 level, Lawson and Mead venture the assertion that this vein joins the Rainbow to the east.

It is not surprising that the Court in its opinion in discussing the weight of the evidence and the credibility of the witnesses took into consideration "the reckless opinions of plaintiffs' experts." (V, 2246.)

Whether they call themselves doctors, experts, professors or geologists, the Court must conclude, as the lower Court did, that their opinions are not worthy of credence, particularly in a case where it is sought to take away from a litigant immense ore bodies claimed to be worth millions of dollars lying within its side lines and under its surface, and presumably granted to it by patent from the Government of the United States, with such reckless statements as those just referred to.

In addition to the fact that the Intermediate vein departs from the Rainbow on strike and not on dip, the development of it in the upper levels in 1250-B raise and in the stopes just above disclose that it is turning to a northerly dip. It is there 1000 feet below the surface of the claim, and where its apex may be is a matter of conjecture. Extralateral rights to mining claims are not granted by conjecture, but as said by the Court below, the proof in support thereof "must be clear and convincing, in quality and quantity that inspires confidence and produces conviction." (V, 2236.) Certainly these wild guesses and reckless statements of Lawson and Mead neither inspire confidence nor produce conviction. It should be noted that neither Burch, Simkins nor Roddewig ventured any such guess.

But assuming for the purposes of this brief that the Intermediate vein does join the Rainbow on dip, what good does that do the appellants in their claim to extralateral rights on the View vein? While the View vein intersects the Intermediate on these levels, there is not a scintilla of evidence to support the theory that such intersection will continue either upward or downward. The Court found that the View vein did depart from the Intermediate vein in the 1550 drift and striking southeasterly joined the Emily. Is this Court going to say that on its upward course for 1000 feet it continues in intersection with the Intermediate or the Rainbow, or is it going to say that it is a matter of conjecture, and that it may change its dip to the north, as does the Rainbow, the North State, the State and the Badger veins in this area, and perhaps apex south of the south side line of the Poser.

Certainly the appellants have not disclosed that they own any extralateral segment of the View vein by virtue of any apex rights thereon, because they have left the vein 1000 feet underground and without any basis for the court projecting it any substantial portion of that distance to an apex.

12. The View Vein Is Not Shown in Contact With the Emily Vein on the 1300 Level.

Beginning at page 120 of appellants' brief they seek to demonstrate that the evidence shows that the View vein is cut off in the east end of the 1338 drift by the Emily, and discussing that in connection with the statement of the lower court in the Elm Orlu case to the effect that where veins are shown to cross at one point they must cross at all points, and that evidence of crossing at one point destroys evidence of union at another, they conclude that the court must be in error as to the finding of union in the 1550 drift.

There might be some merit to this argument had any witness testified that the View vein followed 1338 drift to its contact with the Emily. On the contrary, appellants' witnesses all denied the existence of the View vein in the 1338 drift and westerly, claiming that in this drift was found only the Intermediate vein which continued in depth, and to the east included the stopes in question claimed by appellee to be in the View vein.

Appellee's witnesses on the other hand claim the View vein to be in the western portion of 1338 drift and in 1336 drift, but distinctly testified that it was there a strike fault along the Intermediate vein, and departed to the southeast from the south wall of the drift. (Sales,

III, 1262-3; Steele, IV, 1601; Bateman, III, 1341-2; Barker, III, 1445-46, 1513.)

That this was the position of appellee is very clearly disclosed by Sales' testimony found at pages 1262 and 1263. On cross-examination appellants' counsel questioned Sales with reference to the Intermediate and View veins being in the westerly portion of 1338 and 1336 drifts to a point of contact with the Rainbow, to which Sales assented. Then the question was asked:

"Q. Then this working 1336 and 1338 drift, and 1550 raise and 1550 drift and 1736-A raise and thence on downward to the stopes in controversy, in what we call the Intermediate vein, is all on the View vein?

"A. Yes; did you include 1388 (1338)?

"Q. Yes.

"A. No; I said this portion of it had both of the veins." (Sales, III, 1262-63.)

(In the printed record it appears that Mr. Sales said, "Did you include 1388?". There is no doubt but what 1338 was the drift referred to, because the typewritten record shows the drift to be numbered 1338 in this question; also, on examination of the level map there is no 1388 drift or working in this vicinity.)

A reading of Sales' testimony here and the testimony of the other witnesses for appellee referred to above makes it clear that in the opinion of appellee's witnesses the View vein was not found in the eastern end of 1338 drift, but had turned out southeasterly, as it had done in the 1550 drift.

Likewise, appellants' witnesses contended that there was but one vein in the drift, namely, the Intermediate. Hence the comparison between the facts here, as disclosed by the record, and the observations of the court

in the Elm Orlu case, quoted at page 121 of appellants' brief, will disclose that there is no conflict between the court's views here and in the Elm Orlu case.

Again appellants seek to show that the short cross-cut numbered 13023 driven during the trial southwest-erly from the east end of 1338 drift demonstrates that there is no mineralization or vein matter leaving the drift to the southeast. In this connection we call the Court's attention to the fact that the trial of this case started on October 15th, and on Monday, October 25th, appellants had a force of men working in 13023 cross-cut. (V, 1908-1909.) Appellee learned this on Tuesday, October 26th, and the testimony closed on Wednesday, October 27th. The record discloses that the appellee's witnesses last visited this area on Sunday, October 24th. We therefore suggested to the lower Court, and repeat here, that evidence introduced on the part of the appellants as to what was disclosed in these workings, which were opened during the closing hours of the trial and without opportunity for investigation on the part of the appellee, should be considered with caution.

In addition to the inability of appellee's witnesses to keep up with this forced work during the closing hours of the trial, the appellee had no opportunity to do further work which might demonstrate the correctness of the conclusions of its witnesses.

X.

COSTS.

Appellants' brief (p. 131) suggests that appellants would be entitled to costs of the trial, and states that

in the event of any recovery by appellants, costs would be awarded as a matter of course.

The question of costs in the trial court is not before this Court on this appeal. There is no assignment of error in connection with costs, and no showing that any motion to retax the costs allowed was made to the trial court and, in the absence of such showing, the question cannot be raised upon this appeal.

Tyler Min. Co. v. Sweeney et al., 79 Fed. 277.

Not alone does the record fail to show any retaxation of costs by the trial court, or any objection of appellants to the same, but, as a matter of fact, the cost bill allowed below by the Clerk was in accordance with a written stipulation of the parties that costs in the amount shown in the decree should be taxed and allowed to appellee.

Appellants' contention that in the event of partial recovery by appellants they would be entitled to the allowance of costs in the trial court as a matter of course is also not well founded.

Appellants cite the decision of this Court in *Ebner Gold Min. Co. v. Alaska-Juneau Gold Min. Co.*, 210 Fed., 599, 605, and the Montana Statute, Section 9787, Revised Codes of Montana, 1921. The *Ebner* case was a case at law on writ of error from the District Court for the District of Alaska, where costs had been awarded under the provisions of the Alaska Statutes. Counsel also cite other cases from state courts, which have no application here.

The true rule in equity and admiralty cases is that

the allowance of costs and the apportioning of them between the parties lies in the discretion of the Court.

In the Tyler case, above cited, 79 Fed., 281, this Court, in an action to quiet title where there had been a part recovery, stated:

"In equity cases and in other cases where there are no statutory provisions or rules of practice, the award of costs, as well as the taxation thereof, rests in the sound discretion of the trial court, and will not be reviewed in the appellate court, except in cases of a manifest abuse of such discretion."

Also see:

DuBois v. Kirk, 158 U. S., 58, 67.

Wagner v. Meccano, Ltd., 246 Fed., 603.

Wiegand v. Copeland, 14 Fed., 118.

Blassengame v. Boyd, 178 Fed., 1.

Counsel also cite Section 9787 of the Revised Codes of Montana, 1921.

We doubt very much if a state statute could take from a Federal Court of Equity this equity power which has been lodged in the trial courts, but the question does not arise here, as the Montana Supreme Court has construed this statute to the same effect.

In Heilman v. Loughrin et al., 57 Montana, 380, 383-4, an action to quiet title, where there had been a recovery by plaintiff of a part of the ground in controversy, the Court held that in such a case, under the provisions of Section 7156 of the Revised Codes of 1907, the disposition of the question of costs was within the sound legal discretion of the court, the same rule as prevails in Federal and other courts of equity.

Section 7154 of the Revised Codes of 1907 is identi-

cal with Section 9787 of the Revised Codes of Montana of 1921, cited by appellants' counsel, and Section 9789, one of the companion sections to 9787 of the Revision of 1921, is identical with Section 7156 of the Revised Codes of 1907, referred to by the Supreme Court in its opinion.

Upon an appeal to this Court, where there results a reversal in whole or in part or modification of the lower Court's decree, the case is remanded to the trial court with directions to enter decree accordingly, and the matter of costs incurred in the lower Court would then be a question to be determined by the trial court in its sound discretion.

XI.

THERE SHOULD BE NO MODIFICATION OF LOWER COURT'S DECREE IN THE FORM OF RESERVATIONS OR OTHERWISE.

Under the head, "Conclusion," page 128, appellants' brief, we find the following:

"In conclusion we respectfully submit that the decision of the court below should be *reserved* in the following respects:"

We submit that this Court should direct no modification of the decree of the lower Court, either in the form of reservations or otherwise. As we have heretofore shown, there is no ground in law or under the evidence and the issues in this case, for modification or reversal, in whole or in part, of the lower Court's decree.

The appellants made no application to, or suggestion in, the lower Court of the propriety of incorporating

in the decree, or their desire to have so inserted, any provision reserving any question whatever for future determination. Instead, they submitted the case upon the issues for final determination, and the Court entered the only decree proper, that of dismissal.

Not alone did appellants not suggest upon the trial or submission of the case any desire for any reservation of any kind, but went beyond this and, at the time of the entry of the decree by the lower Court, counsel for appellants acquiesced in the form of the decree and made no suggestion of desire for reservation therein. The minute entry of the lower Court showing this is as follows (V, 2253-4):

“Counsel for respective parties present in court this day—Fred J. Furman, Esq., appearing for the plaintiffs, and Dan M. Kelly, Esq., appearing for defendant.

“Thereupon the final decree herein was duly presented to the Court, signed and ordered entered. The plaintiffs objected generally on the ground that the record discloses that plaintiffs were entitled to the relief prayed for, and as to the form of the decree only there is no objection on the part of the plaintiffs.

“Entered in open court at Helena, Montana, this 26th day of February, A. D. 1927.

“C. R. GARLOW, Clerk.”

Certainly parties cannot submit their case to a Court for decision on certain, specific issues, and then complain because the Court did not go into other matters or issues not suggested or requested, or reserve the right to further litigate upon such additional matters. The necessity of orderly procedure and fair treatment of a lower Court will not permit parties, for the first time

upon appeal to an appellate court, to ask for a reversal or modification of a solemn decree of the lower Court because of the failure of the trial court in not entering reservations or taking other action which had not been suggested to the lower Court, and which it had, so far as the record shows, no opportunity to consider.

XII.

CONCLUSION.

In conclusion, we submit that the record shows that the determination of this case, which turned solely upon issues of fact upon conflicting evidence, was correctly reached by the lower court after extended trial and a painstaking, intelligent investigation of all of the facts presented, aided by an extended view of the premises. In fact, appellants make no serious contention but that the Court's findings of fact were amply supported by the evidence. In view of the character of geological evidence presented by appellants, and particularly considering the fact that the Judge sitting was the same who had presided in the trial of the previous Elm Orlu case, where diametrically opposed geology had been insisted upon, the criticism of appellants' testimony, and case generally, was much less severe than the situation warranted.

We submit that this record exhibits a most flagrant attempt, deliberately planned, through a fabrication of an artificial vein in the case of the Poser, to wrongfully confiscate valuable ore bodies, discovered and developed and mined for many years by appellee without objection. In the case of the Intermediate vein it dis-

closes an equally flagrant and wrongful effort to appropriate ore bodies lying at great depth beneath a neighbor's premises, by means of development work ingeniously planned to bring out not the whole truth but only such facts as might aid appellants in their attempt. The case of appellants, as a whole, illustrates not alone the doubtful character and uncertainty of this class of so-called expert evidence upon which courts have often commented, but demonstrates the extreme and dangerous extent to which such evidence can be carried.

We respectfully submit that the decree of the lower Court should be affirmed.

Respectfully submitted,

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